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MEAT HANDBOOK

OF THE UNITED STATES NAVY

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MEAT HANDBOOK

OF THE UNITED STATES NAVY

1945

BUREAU OF SUPPLIES AND ACCOUNTS

NAVY DEPARTMENT

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NAVY DEPARTMENT,
BUREAU OF SUPPLIES AND ACCOUNTS,
Washington, D. C., 1 August 1945.

The Meat Handbook of the United States Navy is issued for the training and use of commissary personnel utilizing meat at naval activities.

W. J. CARTER,
Chief of the Bureau of Supplies and Accounts.

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Foreword

The *Meat Handbook of the United States Navy*, published for the training and use of commissary personnel, comprehensively covers the subject of meat utilization at naval activities.

The detailed instructions for cutting meat, supported by photographic illustrations, will give practical "on-the-job" help to personnel in the commissary branch who are charged with stowing, issuing, cutting, and cooking meat for messes ashore and afloat. The methods of cutting illustrated, represent the good practices observed in galleys, coupled with the experience and "know how" of representatives of the National Live Stock and Meat Board, an industry organization.

Because of the variety of meat subjects covered, the *Meat Handbook of the United States Navy* should have real value wherever naval commissary personnel is trained.

For this publication, the National Live Stock and Meat Board has rendered expert counsel and donated the several hundred meat-cutting illustrations used herein.

CHAPTER 1

THE IMPORTANCE OF MEAT IN THE NAVY MESS

Meat has always been one of the most important components of the Navy ration. There are sound reasons for the Navy to plan most meals around meat. Meat can be prepared in a very palatable form; it is a satisfying food; it is in general well liked and it "sticks to the ribs." Even more important is the fact that it has an excellent food value. Research has shown that, on the basis of average servings, meat is richer in more of the dietary factors than any other food. It is an excellent source of calories, high quality protein, iron, phosphorus, and essential vitamins, especially those of the important vitamin B group. Meat, which contributes a larger proportion of the total food value of the ration than any other component, is also the most important component of the Navy ration when based on its dollar value.

If the Navy is to obtain from its meat ration the maximum nutritive value and the greatest beneficial effect on morale, it is necessary that commissary personnel judiciously handle and make maximum use of all meat supplies. The handling of meat to the best advantage, from the time it is put aboard until it appears on the serving line as the cooked product, presents a series of problems involving storage, breakouts, cutting, preparation, and service. It has been demonstrated by ships and shore stations that substantial economies in the operation of general messes can be effected when commissary personnel is efficient in all phases of handling meat.

No phase of meat handling in the Navy is more important than the meat cutting done in the meat shop in advance of cooking. Only when beef, pork, lamb, and veal is properly cut and well-prepared will the roasts, steaks, chops, stews, and other meat dishes be entirely satisfactory to those being served. The major purpose of the Meat Handbook of the United States Navy is, therefore, to provide information on meat cutting methods which, when applied, will result in maximum utilization of Navy meat supplies.

NOTE.—The subject of meat cookery is thoroughly covered in the Navy Cook Book. Questions and answers on meat cookery may be found on pages 144 to 148 of this publication.

CHAPTER 2

BEEF

Section 1

Beef Cutting

This section deals with beef cutting. Instructions are well illustrated and easy to follow. The methods of beef cutting dealt with here have proved their value in naval commissaries ashore and afloat.

Cutting methods adaptable to all conditions.—Beef cutting methods described in this section may be followed in every type of galley ashore and afloat. When block space is limited, almost all cutting may be done from the hook. Where there is enough galley space, much of the cutting may be done on blocks or tables. At almost any point in the operation, all or part of the work may be transferred to the cutting block.

Full use made of carcass.—Complete and efficient use of all meat, bones, and fat in the quarters of beef was the main reason for developing this Navy style of cutting. This method provides:

1. Division of all major cuts at natural seams. By doing this, roasts hold together better during carving.

2. Separation of thick meat from thin meat, and tender cuts from the less tender cuts. This uses all meat to the best advantage.

3. Removal of all bones for making stock for soups, gravies, meat loaves, etc. This speeds up carving and helps give uniform servings.

4. Removal of all tendons, ligaments, and tough serous membranes. This makes carving easier and provides better steaks and ground meat dishes.

5. Removal of all excess fat for rendering and use in cooking.

Yield of boneless meat, fat, and bones.—To use beef hindquarters and forequarters to best advantage, it is important to remember that a side of beef is not all meat, and the 70 percent yield of meat is not all suitable for roasts and steaks. Here is the approximate yield of meat, fat, and bones in a side of beef:

	Percentage yield
Roasts and steaks	32
Stewing and grinding meat	38
Fat	11
Bones	17
Waste and cutting loss	2
Total	100

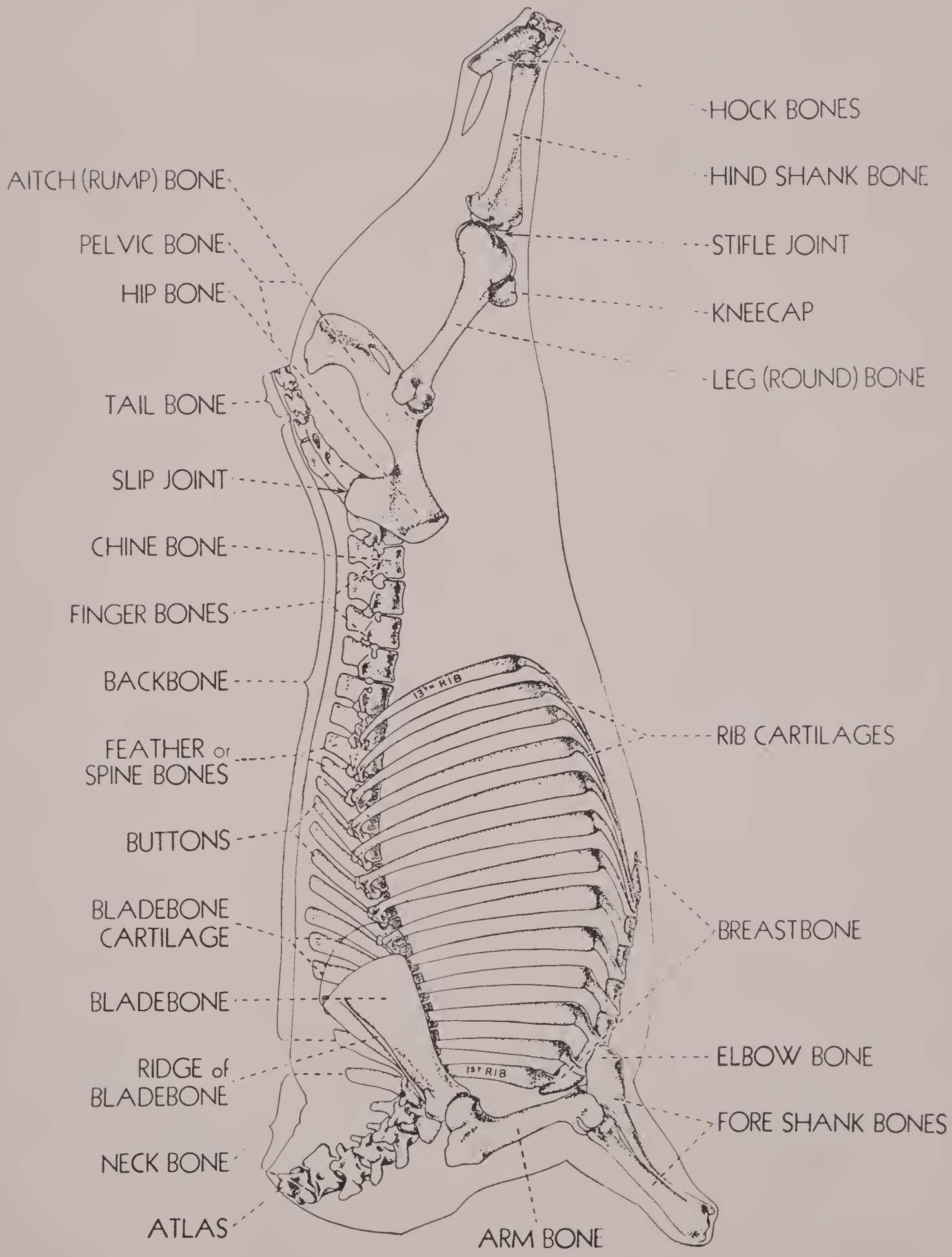
A table giving information similar to the above on the hindquarter of beef will be found on page 5. The forequarter table is on page 27.

Cutting Methods Illustrated:

	Page
Beef cutting	2
Beef bone chart	3
Beef hindquarter chart	4
Making beef hindquarter cuts	5–25
Beef forequarter chart	26
Making beef forequarter cuts	27–43
Beef: Boneless, frozen	44–46
Chart: Beef Boneless, frozen	44
Beef Roasting Test	47
Questions and answers about beef	137–140

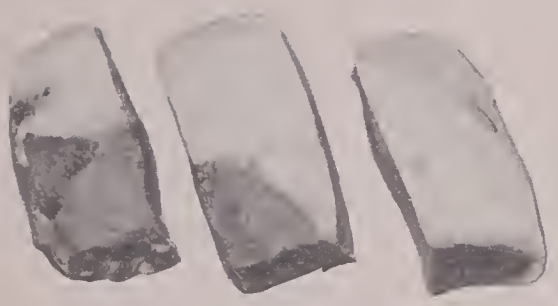
BEEF CHART

LOCATION, STRUCTURE, AND NAMES OF BONES



BEEF HINDQUARTER CHART

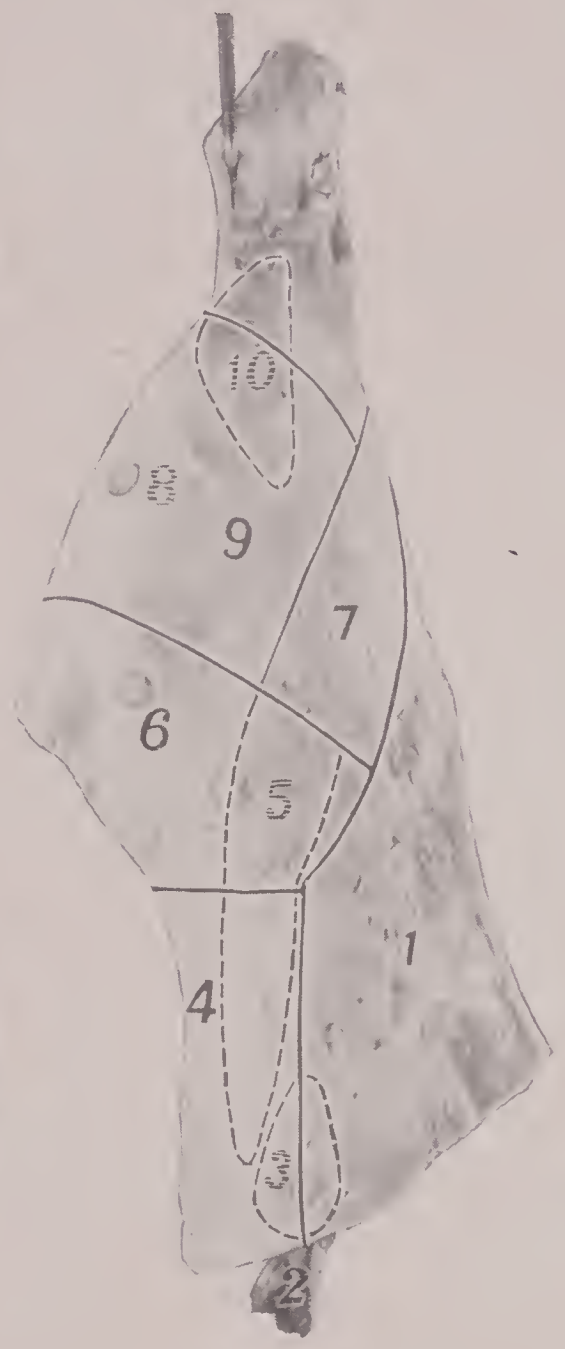
UNITED STATES NAVY BONELESS CUTS

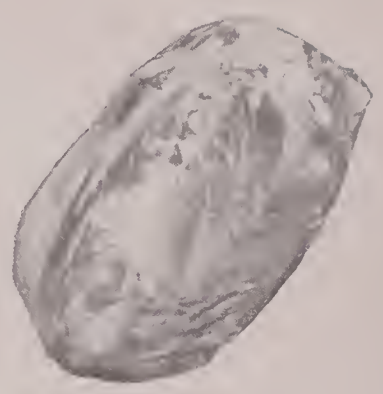


Inside (Top) Round—8

Outside (Bottom) Round—9

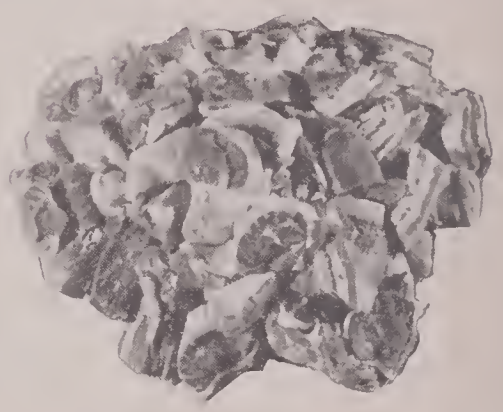
Sirloin-Rump Butt—6





Heel—10

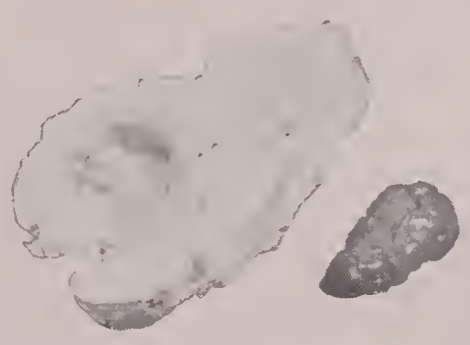
Knuckle (Tip)—7



Boneless Stew—1, 2

NUMBERS INDICATE LOCATION OF CUTS AND SEQUENCE IN WHICH THEY ARE MADE

Loin Strip—4



Kidney Knob—3

Tenderloin—5

See pages 5 to 25 for instructions on making these cuts.

Making Beef Hindquarter Cuts

Many desirable cuts of beef for roasts and steaks are found in the hindquarter. In addition, the hindquarter provides meat for braising, stewing, and grinding. The table below gives the approximate percentage of meat, fat, and bones in the hindquarter (2 percent is allowed for cutting loss and unusable trimmings). It also lists the various cuts and gives the recommended use for each. Instructions for making beef hindquarter cuts are given on the following pages.

Hindquarter Cuts for Roasts and Steaks

(*About 46 percent of the hindquarter*)

Cut	*Use*
Tenderloin	roasts, steaks
Loin Strip	roasts, steaks
Sirloin-Rump Butt	roasts, steaks
Knuckle (Tip)	roasts, steaks
Inside (Top) Round	roasts, steaks
Outside (Bottom) Round	roasts, steaks

Hindquarter Cuts for Braising, Stewing, and Grinding

(*About 22 percent of the hindquarter*)

Cut	*Use*	*Cut*	*Use*
Heel	braise, stew, ground beef	Lean Trimmings	ground beef
Flank Meat	braise, stew, ground beef	Kidney	stew, gravies, ground meat
Shank Meat	stew, ground beef		

Hindquarter Fat for Rendering

(*About 14 percent of the hindquarter*)

Cod Fat	render, or slice and lay on lean cuts during cooking
Kidney Suet and other fat	render and use for cooking purposes

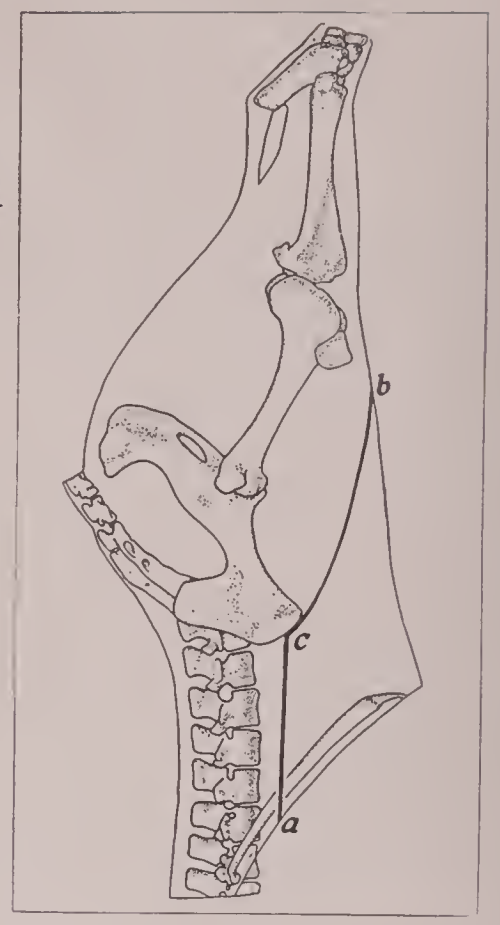
Hindquarter Bones for Stock

(*About 16 percent of the hindquarter*)

Bones	stock for soups, gravies, meat loaves, etc.

Removing Flank from Hindquarter

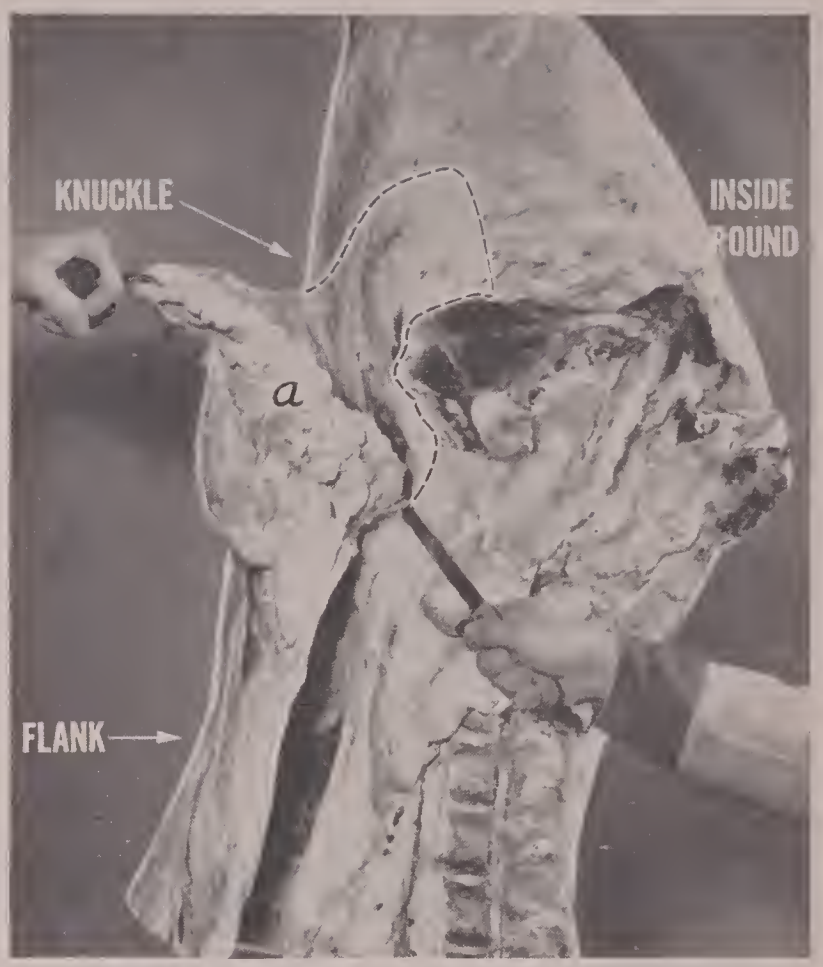
With hindquarter hanging from hook, saw across 13th rib at (a) one inch from loin "eye." Cut from (a), parallel with back, until knife reaches hip bone at (c). Finish removing flank by cutting from (b) to (c).



1. Saw across 13th rib, one inch from loin "eye" muscle.

2. Cut parallel with back until knife reaches hip bone.

3. Remove thin layer of meat from outside of flank.

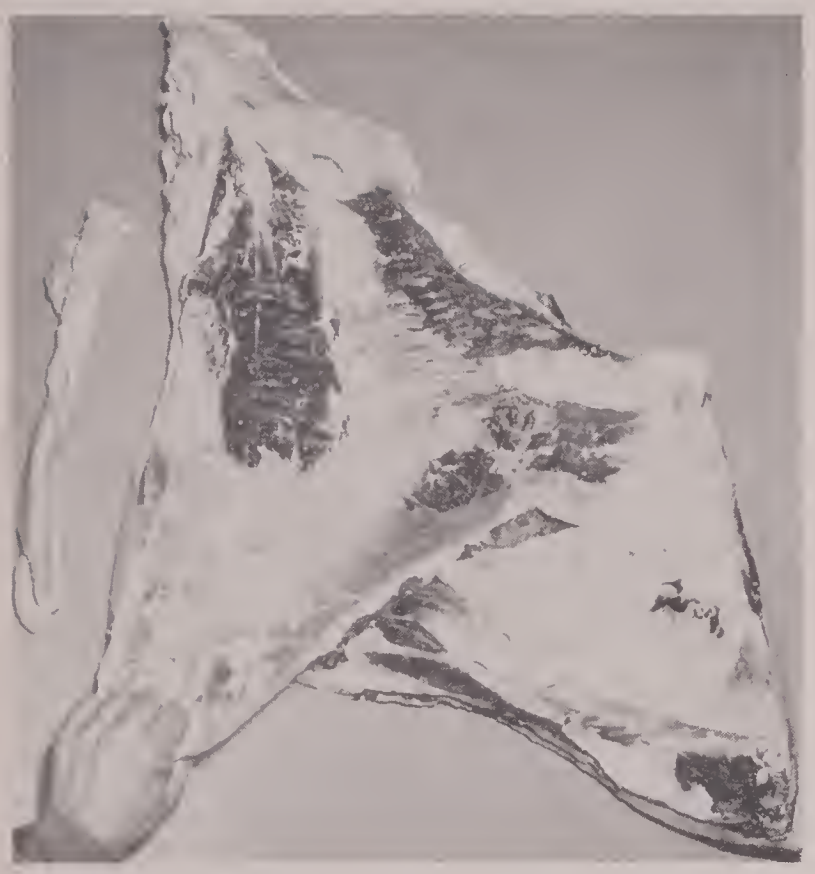


4. Loosen cod fat (a) by cutting through seam over inside round and knuckle.

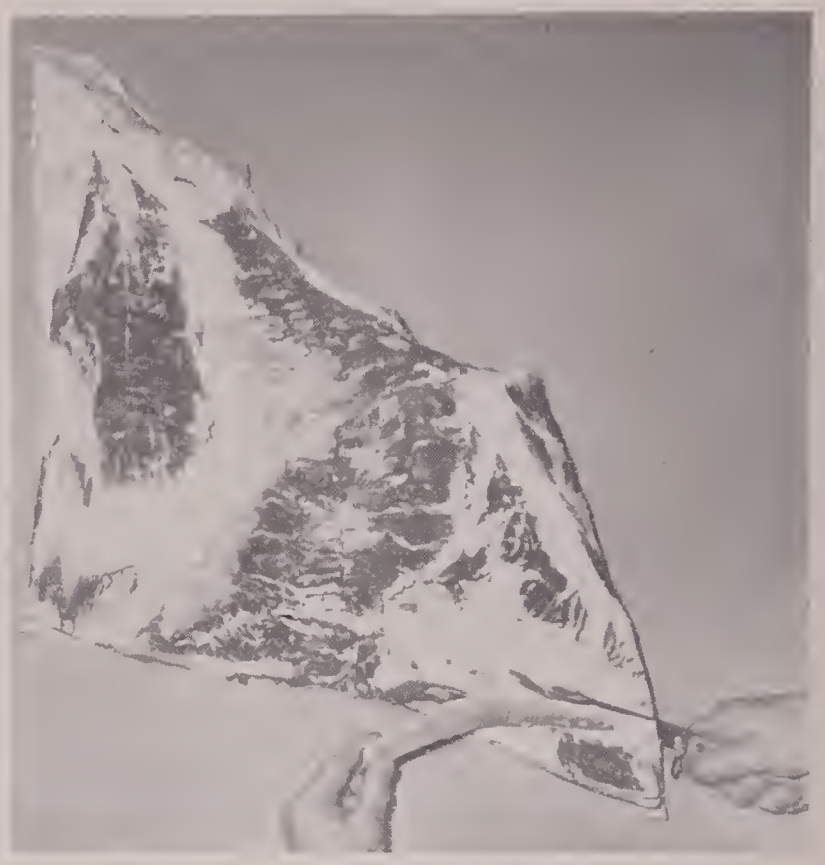
5. Cut through seam around knuckle to partially separate flank from hindquarter.

6. Cut around hip bone to finish separating flank from hindquarter.

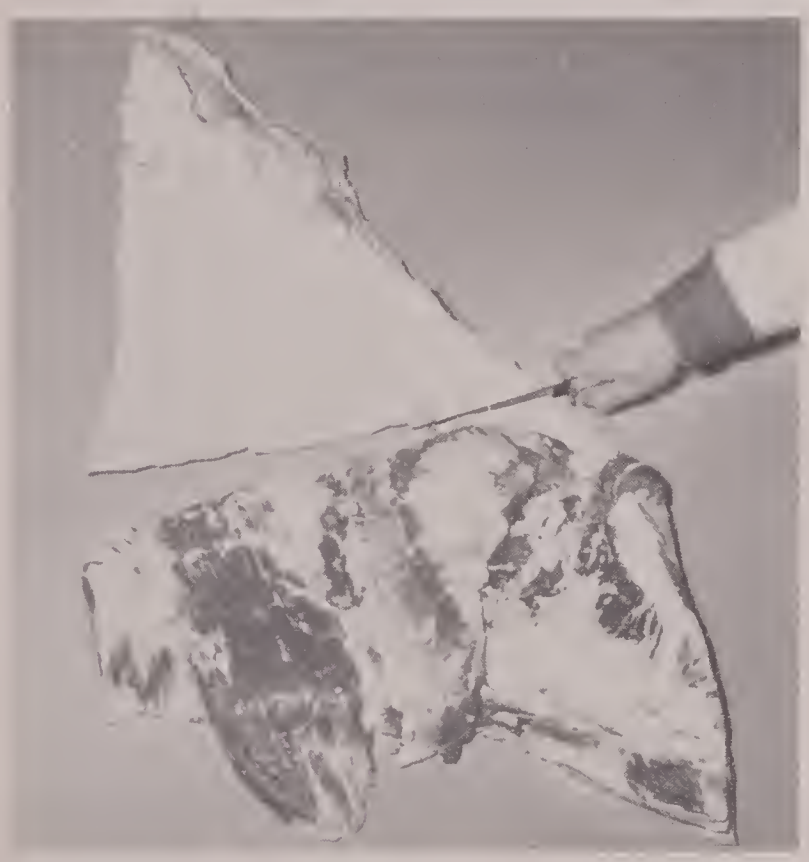
Cutting the Flank



1. Cut thin strip from navel side of flank; then pull membrane from inside of flank.



2. Remove section of 13th rib which is imbedded in flank meat.



3. Pull flank steak with meat attached as far as it will pull easily; then cut across flank to separate meat from fat.

4. Cut boneless flank into pieces for stewing or grinding.

Removing Hanging Tender

1. Remove blood vessel from along edge of chine bone.

2. Cut hanging tender from hindquarter.

Trimming the Hanging Tender

3. Remove membrane and surplus fat from outside of hanging tender. Split and take out strip of gristle. Use boneless meat for stewing or grinding.

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Removing Fat from Inside of Hind

1. Cut through fat from end of aitch (rump) bone (a) to edge of backbone (b).

2. Remove layer of fat, leaving about ½ inch covering on meat.

3. Cut surplus fat from rump. Continue cutting to unjoint and remove tail bone (usually 2 tail vertebrae).

4. Scoop fat from inside of rump cavity.

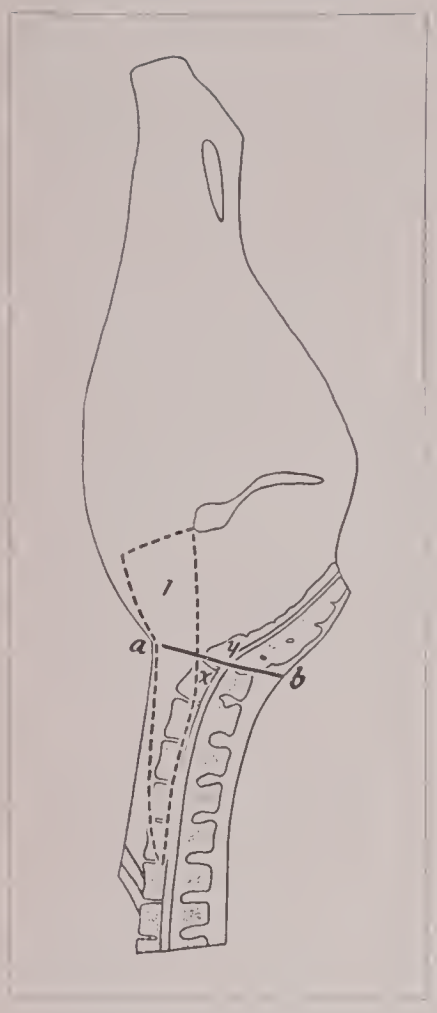
5. Follow seam to remove loin fat and kidney knob.

Taking Out the Kidney

1. Split open kidney knob and take out kidney.

2. Beef kidney to be cut up and used with other meats in making stews, ground meat dishes, gravies, etc.

Removing Short Loin



With trimmed hindquarter hanging from hook, loosen butt end of tenderloin (1) and remove short loin by cutting between last lumbar vertebra (x) and first sacral vertebra (y); then by cutting through meat immediately in front of hip bone from (a) to (b). This separation is made without using a saw.

1. Scoop layer of lean meat from aitch (rump) bone.

2. Cut on a line with aitch (rump) bone to separate head of tenderloin from knuckle.

3. Follow seam over hip bone to loosen butt end of tenderloin.

4. Continue cutting under tenderloin until end of hip bone is reached.

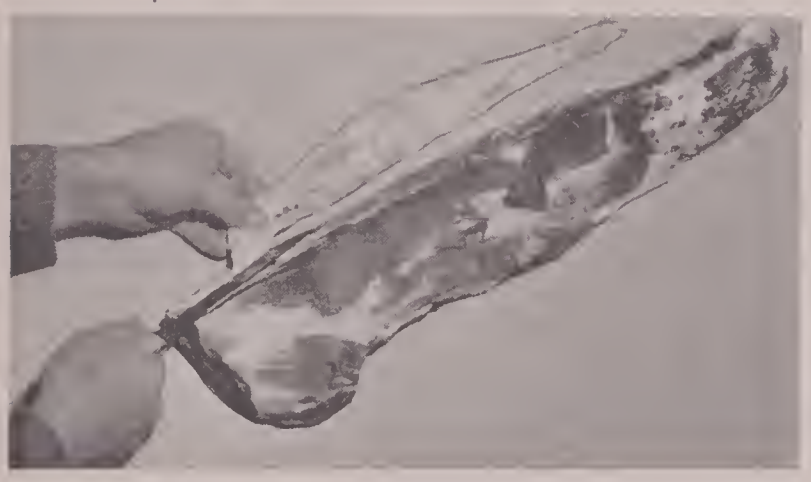
5. Cut between sacral and lumbar vertebrae.

6. Cut through meat between hip bone (a) and last finger bone (b).

7. Twist short loin to free it from sirloin-rump section of hindquarter.

Removing and Trimming the Tenderloin

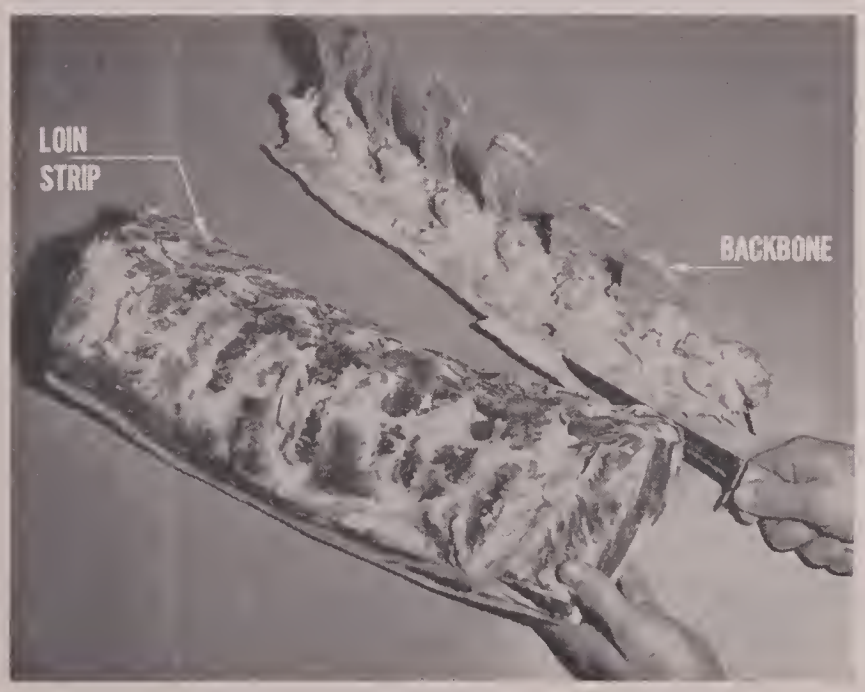
1. Cut under tenderloin to separate it from short loin.



2. Remove tough membrane from outside of tenderloin.

3. Beef tenderloin for roasts or steaks.

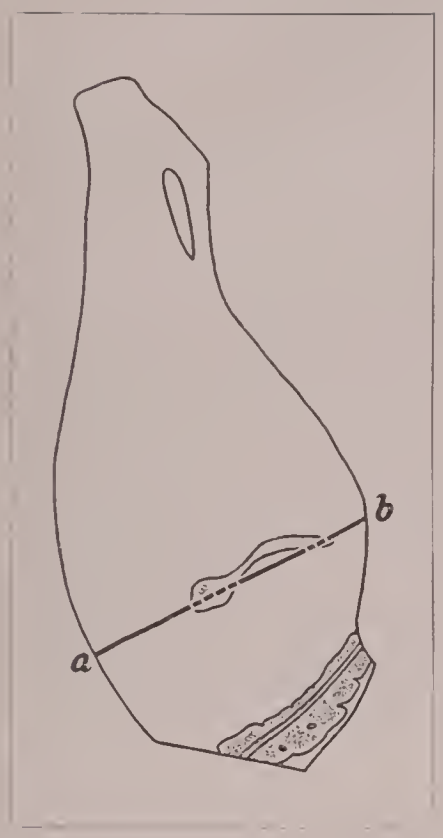
Making the Loin Strip



1. Separate loin strip from backbone.

2. Loin strip for roasts or steaks.

Removing Sirloin-Rump Butt



← With long round hanging from hook, take out pelvic (rump and hip) bone and sacral vertebrae; then cut from (a) to (b) to remove sirloin-rump butt.

1. Loosen meat from around end of hip bone.

2. Cut meat free from aitch (rump) bone.

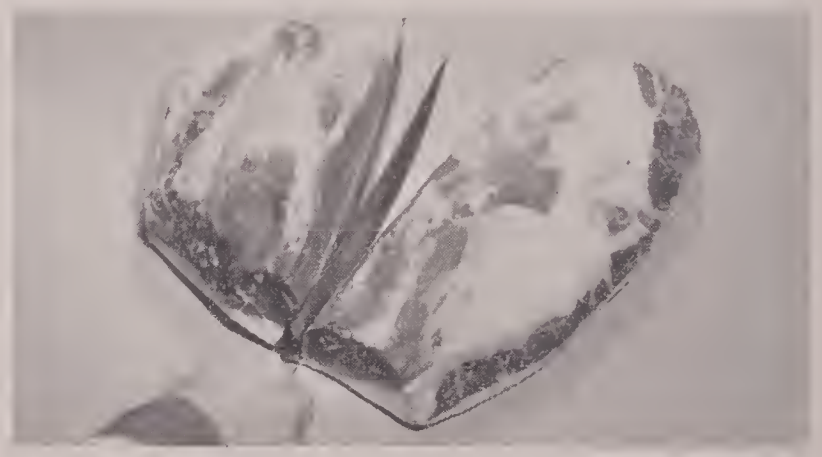
3. Remove pelvic (rump and hip) bone.

4. Cut through meat to leg bone as first step in separating sirloin-rump butt from round.

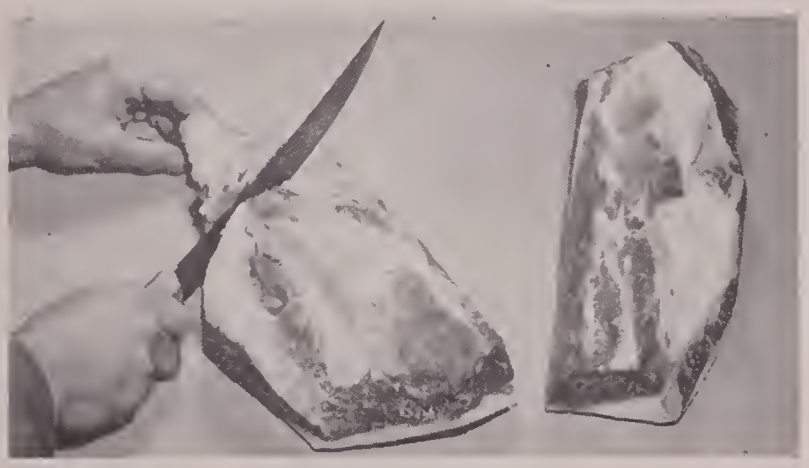
5. Cut around end of leg bone to finish separating sirloin-rump butt from round.

Cutting the Sirloin-Rump Butt

1. Remove loose layer of meat and fat.



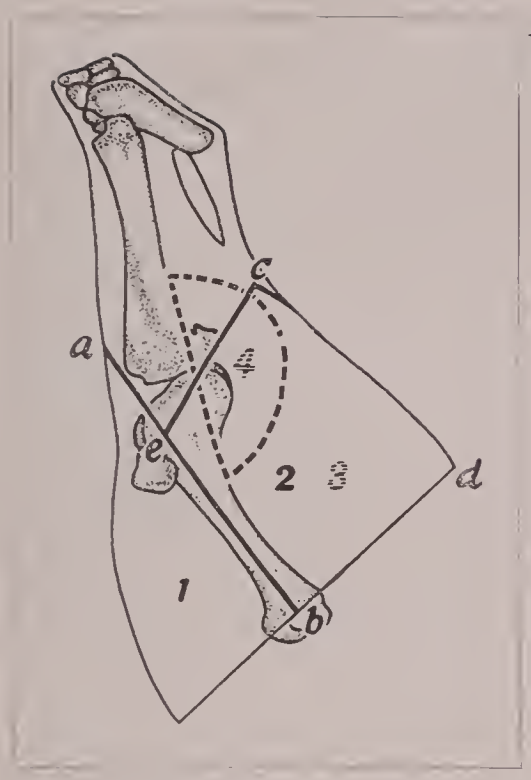
2. Split sirloin-rump butt into two pieces.



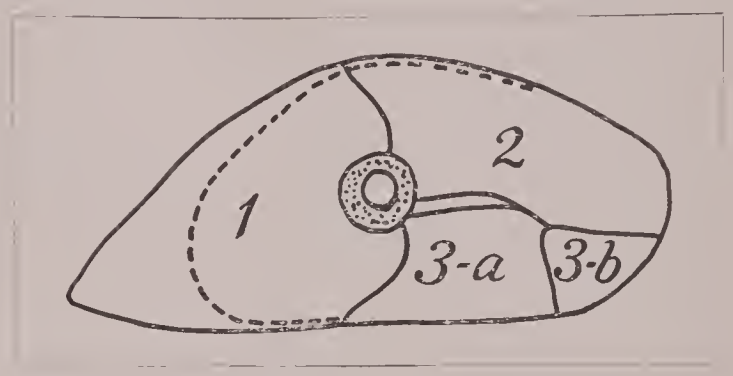
3. Cut thin meat from sirloin section.

4. Sirloin rump butt for roasts or steaks.

Making Cuts from Beef Round



←—Remove knuckle (1) by cutting through meat to leg bone from (a) to (b) on both sides of round. Remove inside (top) round (2) by starting along line (e—c) and following seam from (c) to (d) and (e) to (b). Take off outside (bottom) round (3) by cutting through seam around heel (4). Remove heel (4) by cutting around shank and leg bones.



→

1. Knuckle (Tip).
2. Inside (Top) Round.
3a and 3b. Outside (Bottom) Round.

Removing the Knuckle (Tip)

1. Cut through meat to leg (round) bone from kneecap (a) to end of bone (b).

2. Follow seam to remove meat and fat from outside of knuckle.

3. Cut through seam to leg (round) bone between (a) and (b); then unjoint kneecap and cut through membrane which covers leg bone.

4. Pull knuckle (tip) from leg (round) bone.

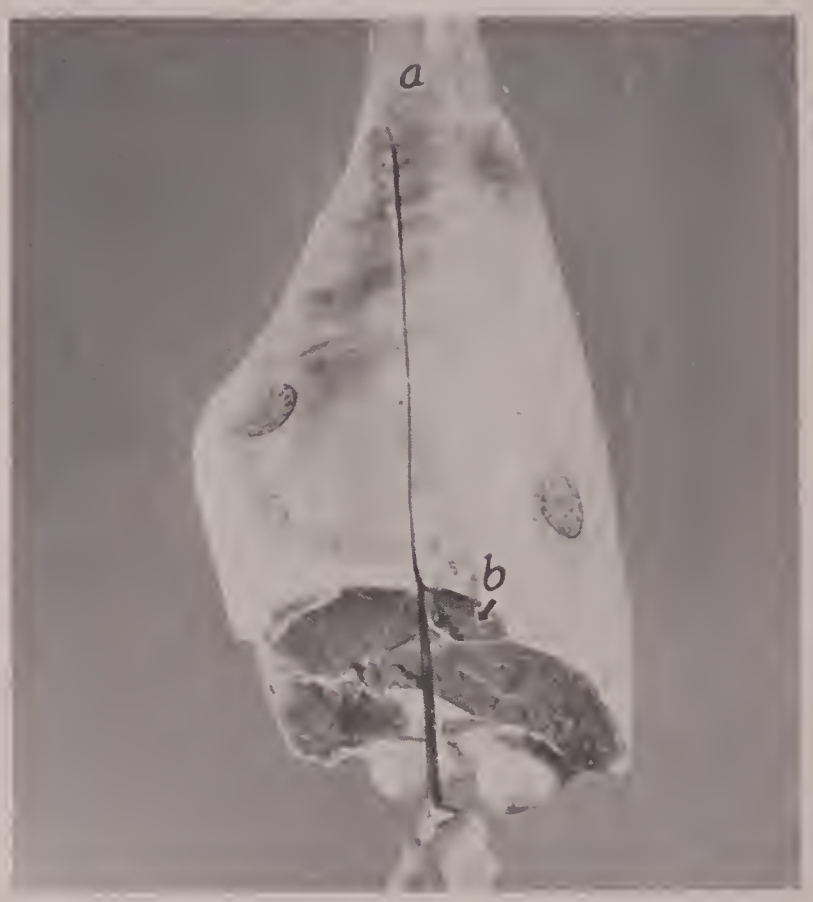
Trimming the Knuckle (Tip)

1. Cut kneecap (1) from knuckle; then follow natural seam to remove muscle (2).

2. Knuckle (tip) for roasts or steaks.

Removing the Inside (Top) Round

1. Trim thin layer of dry meat and membrane from inside (top) round.



2. With tip of knife cut in a straight line from near lower end of gam cord (a) to edge of "eye" muscle (b).

3. With tip of knife cut from lower edge of gam cord (a) to upper end of leg (round) bone (b).

4. Cut through seam to separate inside (top) round from outside (bottom) round.

5. Continue cutting through seam to remove inside (top) round.

Cutting the Inside (Top) Round

1. Trim thin meat from shank end of inside (top) round.

2. Split inside (top) round into two or three pieces of equal size.

3. Inside (top) round cut into three pieces for roasts or steaks.

Removing the Outside (Bottom) Round

1. Cut through end of "eye" muscle to first natural seam.

2. Continue cutting with tip of knife to upper end of leg bone.

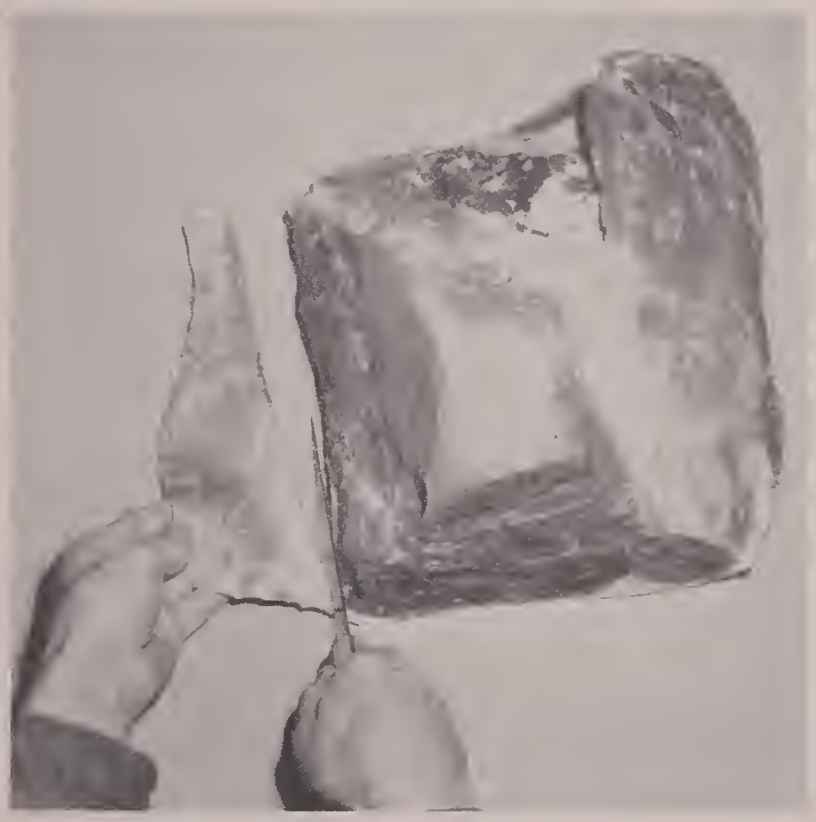
3. Cut through seam between heel and outside (bottom) round.

4. Continue cutting through seam around heel muscle.

5. Finish cutting through seam around heel; then remove outside (bottom) round by cutting meat free from leg (round) bone.

Cutting the Outside (Bottom) Round

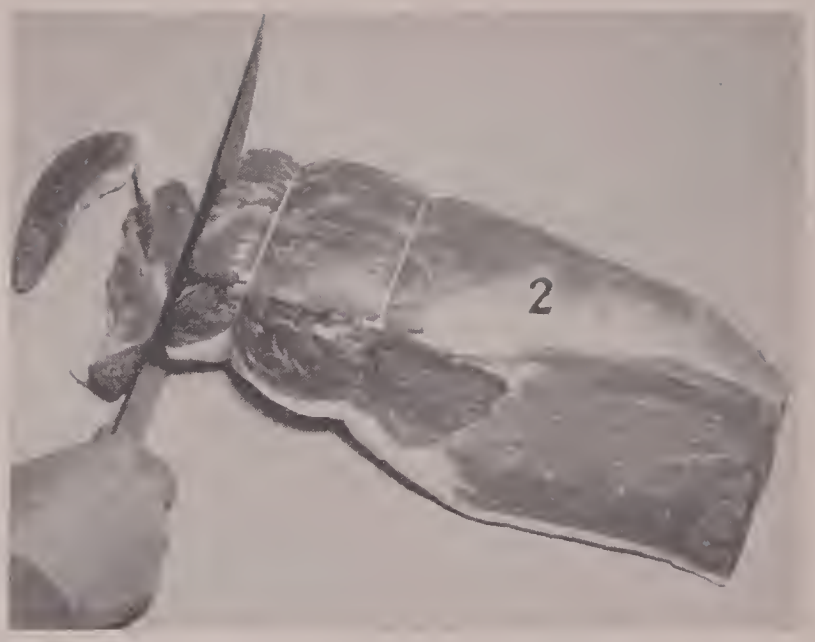
1. Trim off surplus fat.



2. Remove tough membrane from edge of outside (bottom) round.

3. Split outside (bottom) round into two pieces.

4. Trim thin meat from end of cut No. 1.



5. Tie cut No. 2 with two strings; then trim thin meat from end.

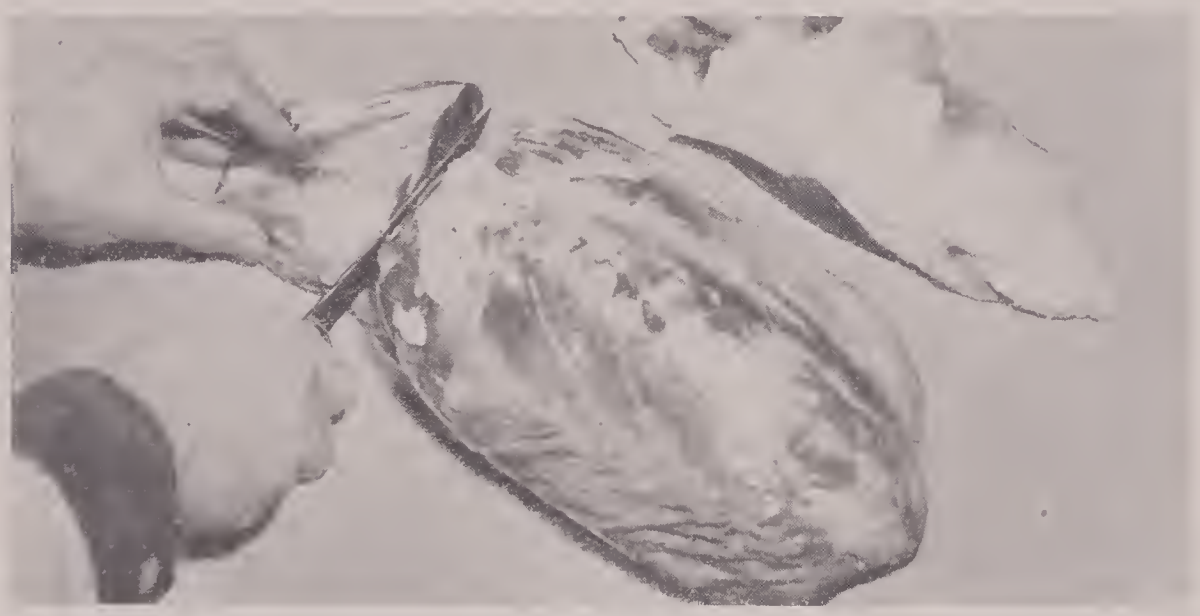
6. Outside (bottom) round split into two pieces for braising as pot-roast or Swiss steaks. Use for roasting or as steaks for griddle-broiling only when necessary.

Removing Heel and Shank Meat

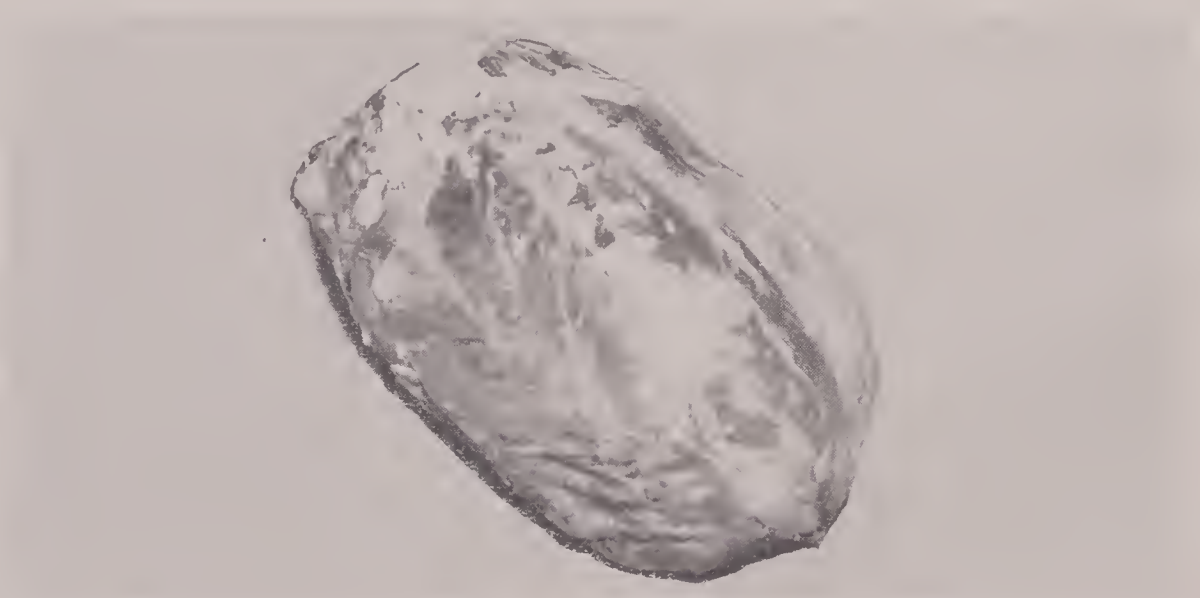
Cut around shank and leg bones to remove heel and shank meat.

Trimming the Heel

1. Cut through seam to separate shank meat from heel meat.

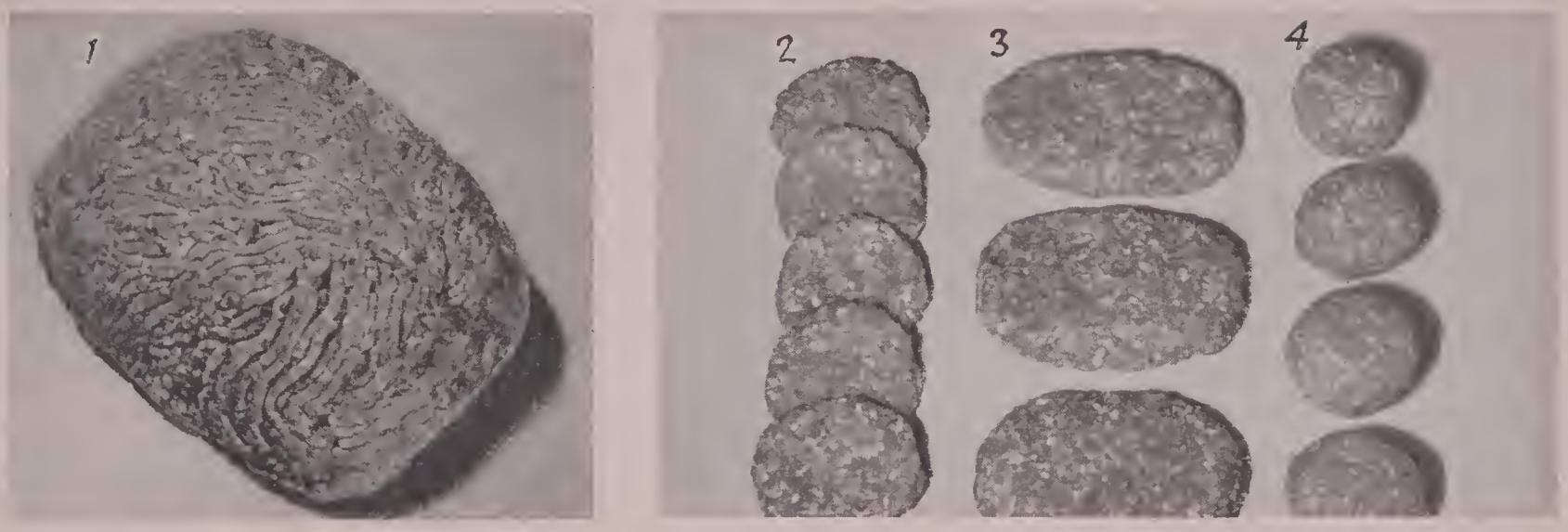


2. Trim thin meat from end of heel.

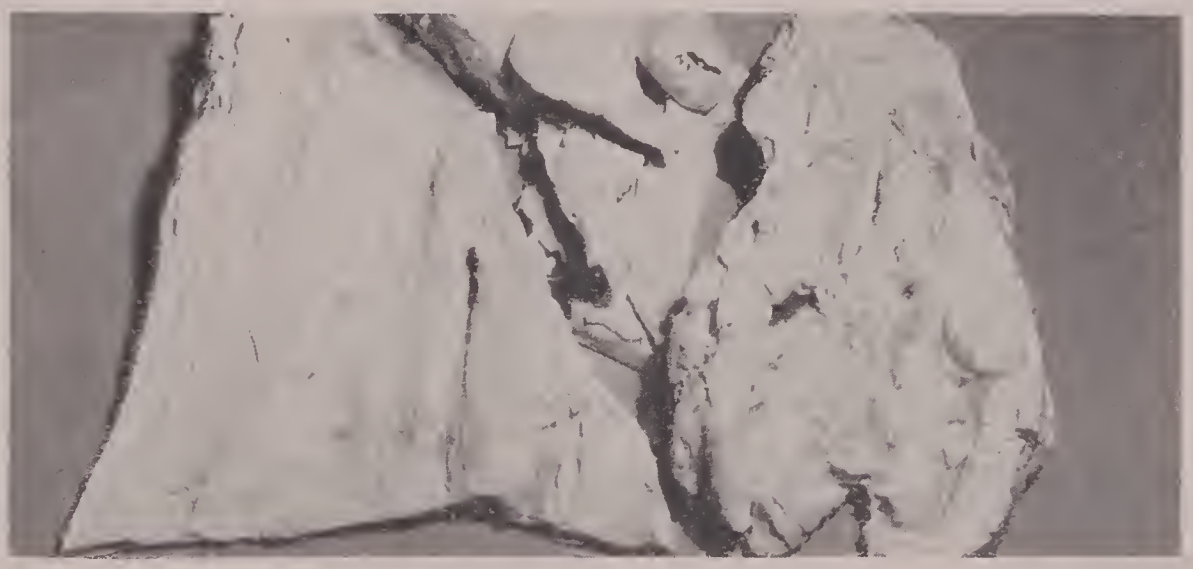


3. Heel of round for braising as a pot-roast or for cutting into pieces for stewing or grinding.

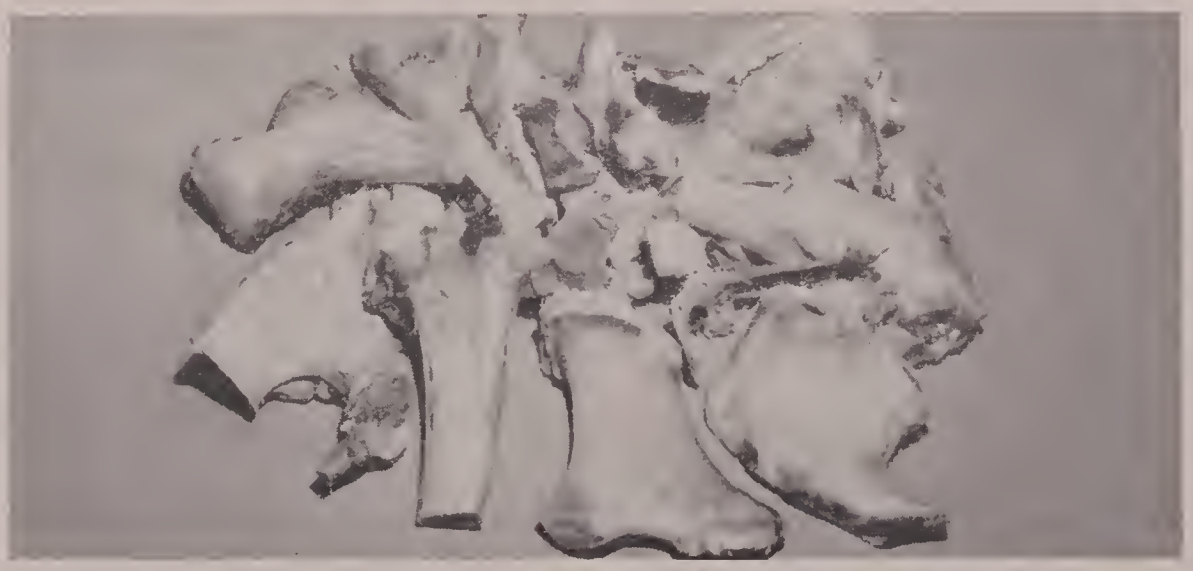
Using Meat Trimmings, Bones, and Fat



Cut lean trimmings into pieces for stew, or grind and use as shown above for (1) meat loaf, (2) beefburgers, (3) salisbury steaks, (4) meat balls.



All fresh clean fat obtained from hindquarters and forequarters should be cut into strips, ground through coarse plate and rendered immediately.



Saw bones into pieces and use for making stock for soups, gravies, meat loaves, etc.

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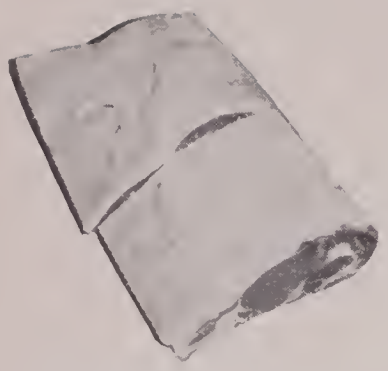
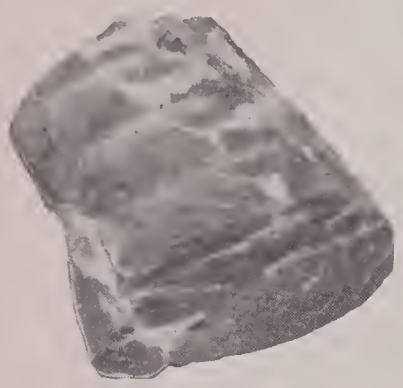
BEEF FOREQUARTER CHART

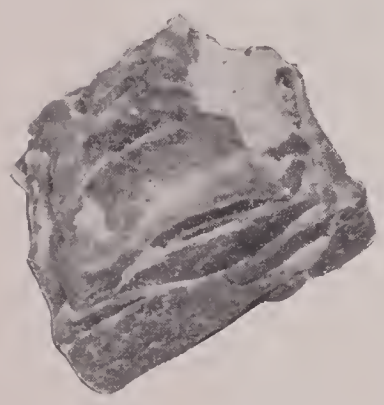
UNITED STATES NAVY BONELESS CUTS



Boneless Rib—7

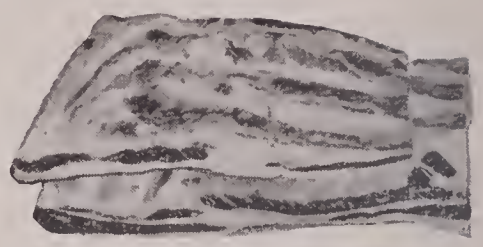


Inside Chuck—8

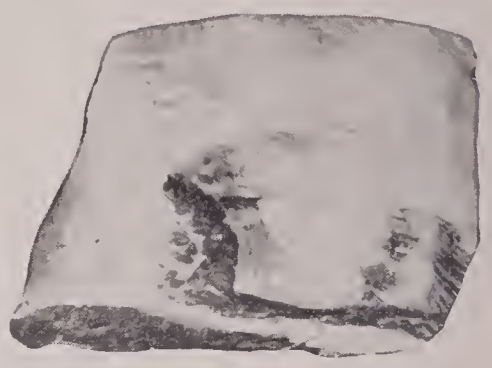


Boneless Neck—9

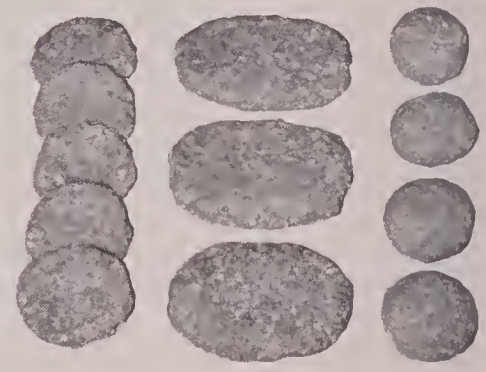
NUMBERS INDICATE LOCATION OF CUTS AND SEQUENCE IN WHICH THEY ARE MADE



Boneless Plate—5



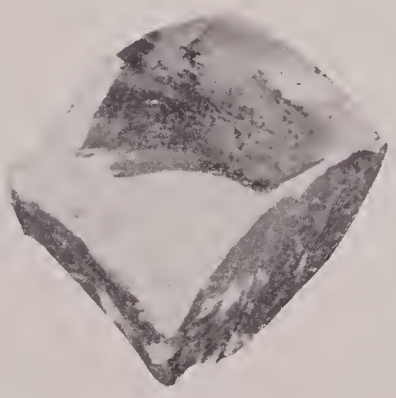
Boneless Brisket—6



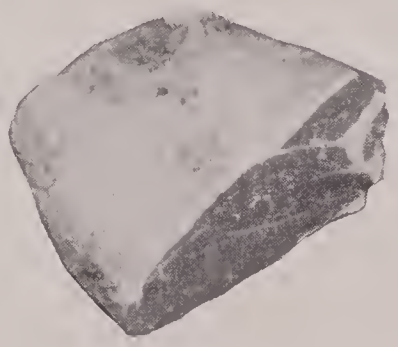
a b c

a. Beefburgers
b. Salisbury Steaks
c. Meat Balls

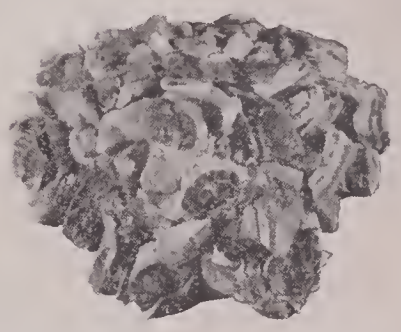
Chuck Tender—3



Upper Half-Clod—4



Lower Half-Clod—1



Boneless Stew—2, 5, 6, 9

See pages 27 to 43 for instructions on making these cuts.

Making Beef Forequarter Cuts

The forequarter of beef will yield approximately 5 percent more meat than the hindquarter. When cut according to the method described on the following pages, it will provide several blocky cuts of meat suitable for roasts and steaks. The table below, which gives the recommended use for each cut, shows that 53 percent of the forequarter (allowing 2 percent for cutting loss and unusable trimmings) is composed of meat which is most desirable when used for braising, stewing, and grinding. This fact should be taken into consideration when planning the meat dish from an issue of beef forequarters.

Forequarter Cuts for Roasts and Steaks

(*About 20 percent of the forequarter*)

Cut	*Use*
Boneless Rib	roasts and steaks
Inside Chuck	roasts and steaks
Upper Half-Clod	roasts and steaks
Lower Half-Clod	roasts and steaks
Chuck Tender	roasts and steaks

Forequarter Cuts for Braising, Stewing, and Grinding

(*About 53 percent of the forequarter*)

Cut	*Use*	*Cut*	*Use*
Boneless Neck	braise, stew, ground beef	Skirt, Rib Fingers, Shank, Neck and Forearm Meat, Lean Trimmings	stew, ground beef
Boneless Plate	braise, stew, ground beef		
Boneless Brisket	braise, stew, ground beef		

Forequarter Fat for Rendering

(*About 7 percent of the forequarter*)

Surplus Fat	Render and use for cooking purposes

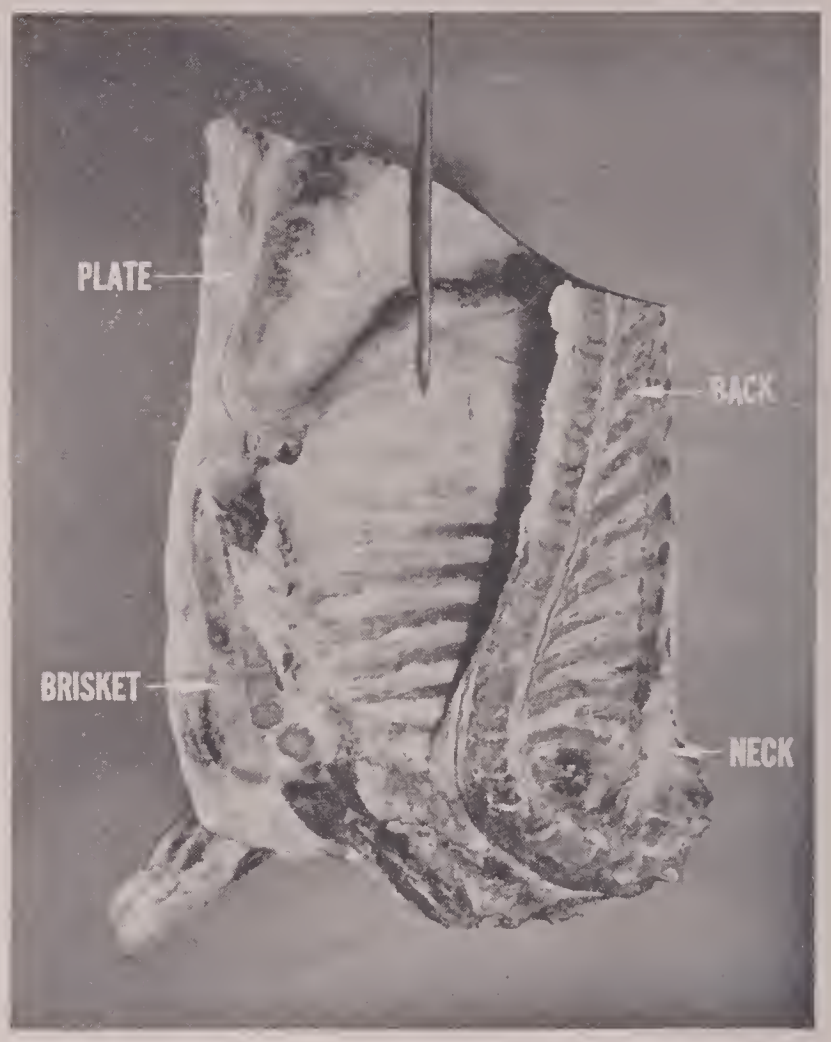
Forequarter Bones for Stock

(*About 18 percent of the forequarter*)

Bones	Stock for soups, gravies, meat loaves, etc.

Trimming Beef Forequarter

Hang forequarter on hook so that it hangs evenly from its own weight, as shown in picture at right. While in this position some trimming should be done around the neck, plate, brisket, and back before any major cuts are removed.



Pulling the Neck Pin

Pull pin from neck. Loosen with knife blade if necessary.

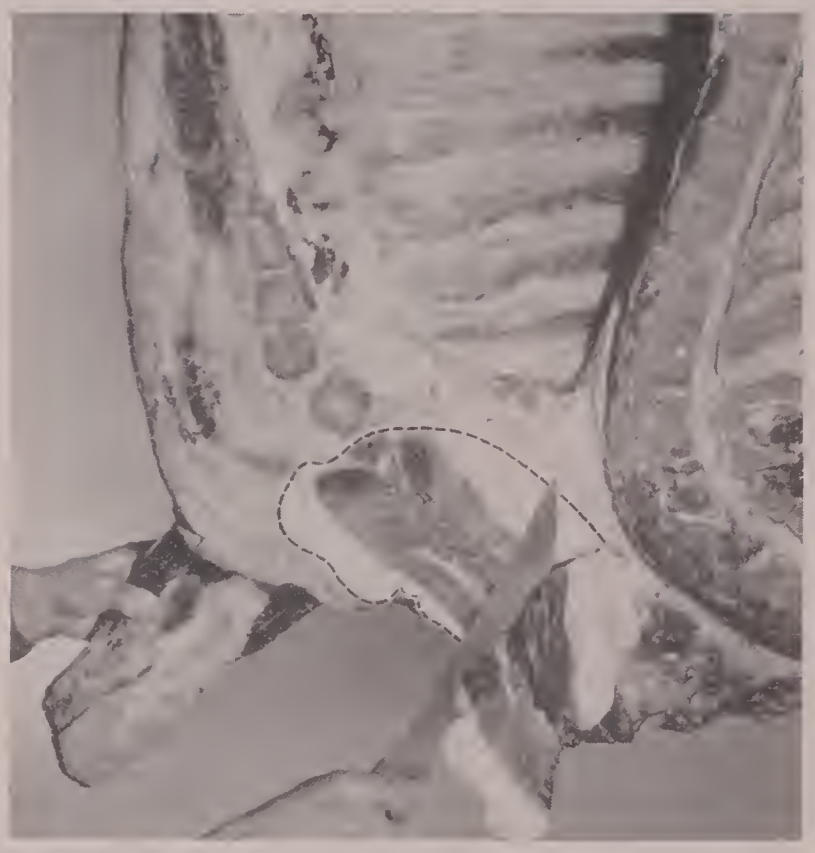
Removing the Atlas

Cut between 1st and 2nd vertebrae to remove atlas.

Removing Heart Fat

Remove heart fat lying along edge of breastbone.

Trimming the Neck



Trim bloody meat from throat side of neck.

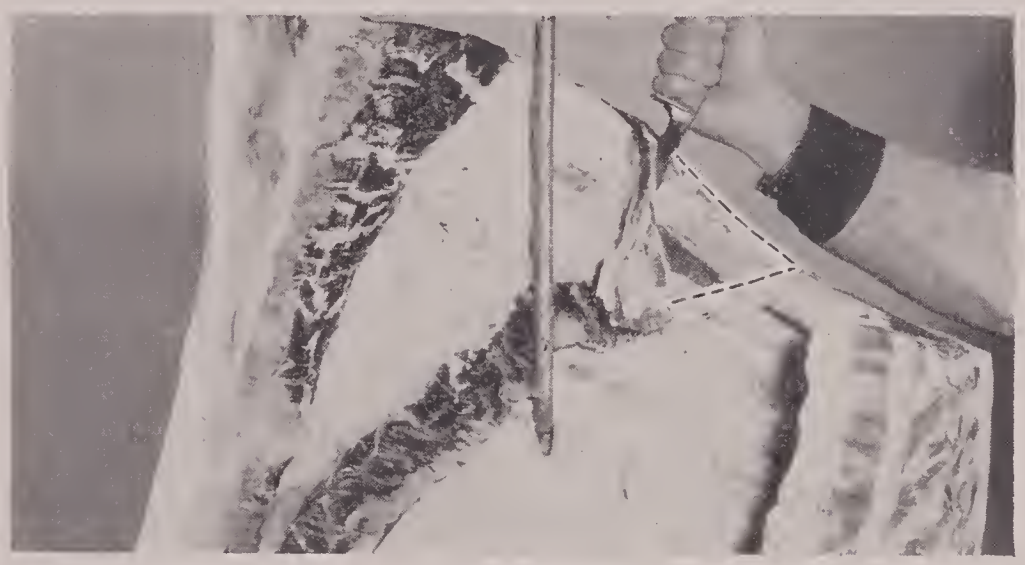
Trimming the Plate

1. Cut thin strip from navel side of plate.

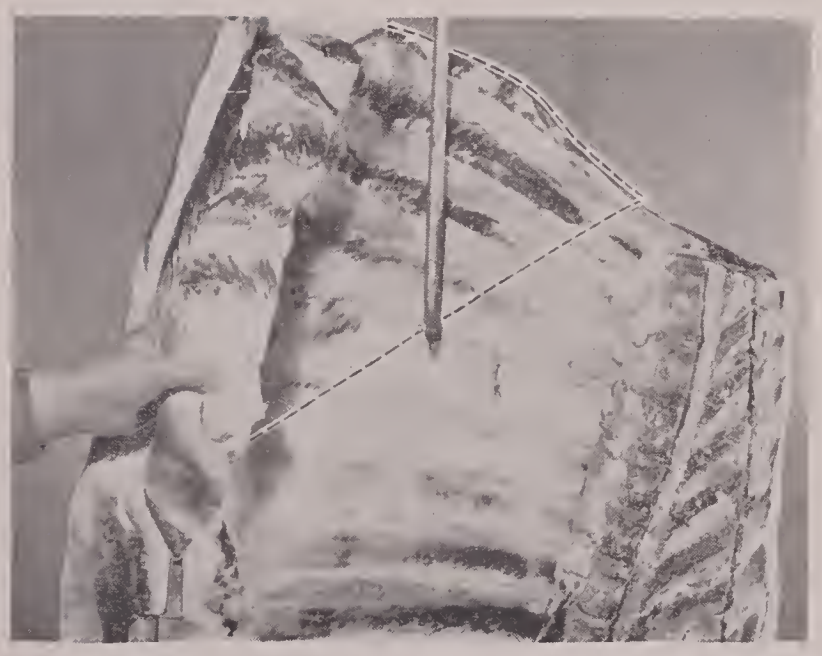
2. Cut narrow strip from thin edge of skirt (diaphragm).

3. Pull membrane from skirt and plate meat.

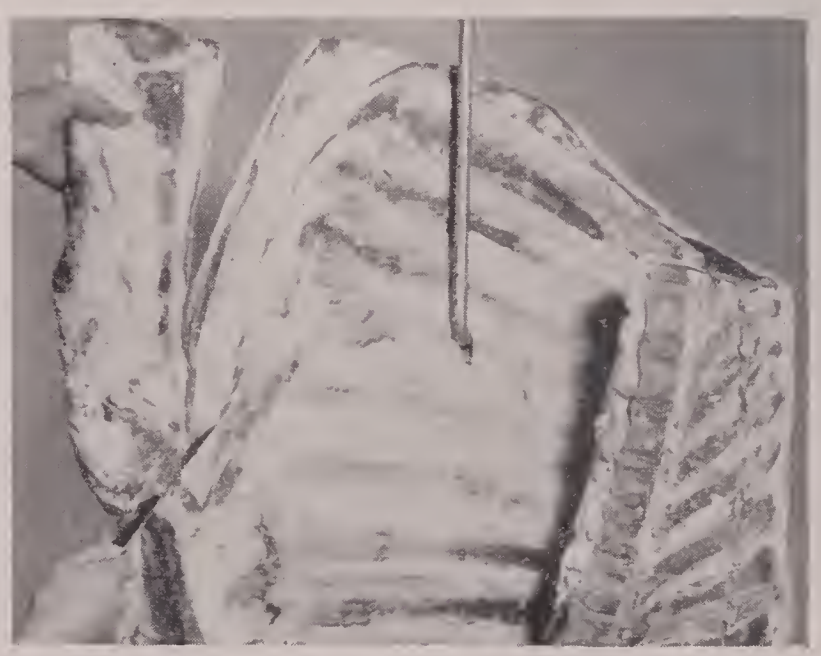
Removing Skirt and Plate Meat



1. Cut under skirt and plate meat, keeping close to ribs.

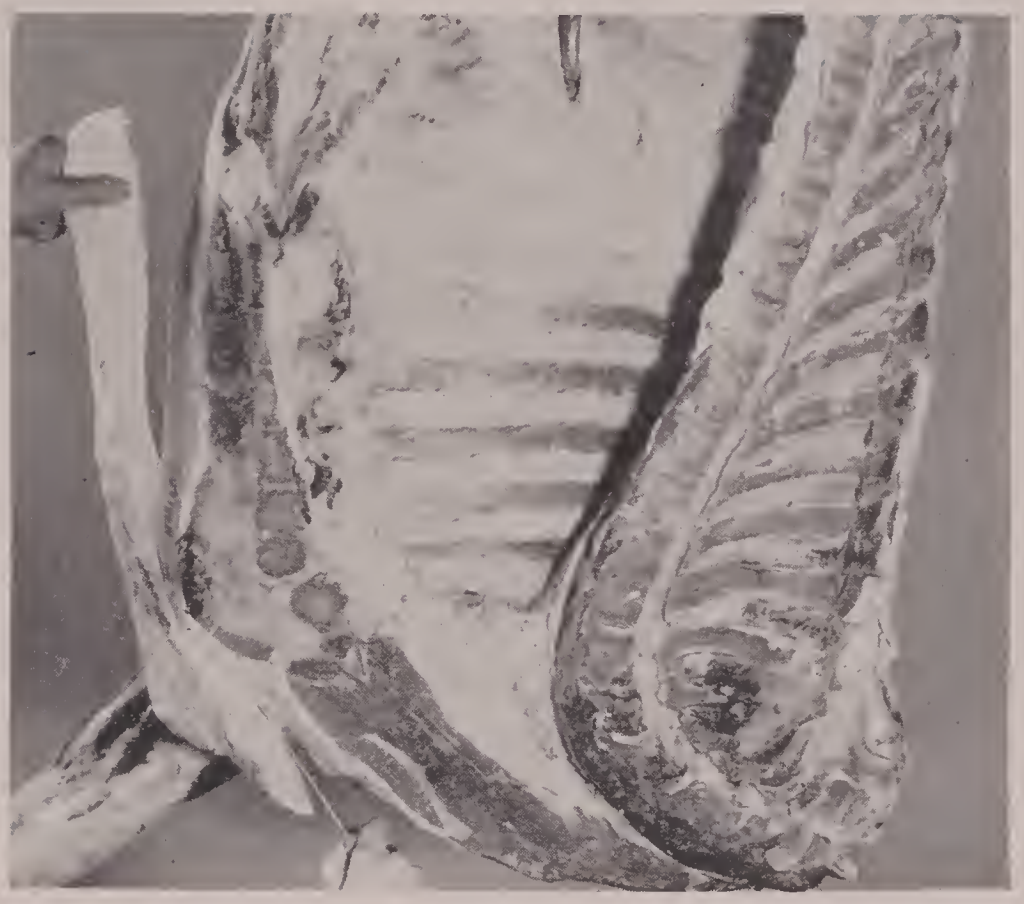


2. Continue cutting under skirt and plate meat.



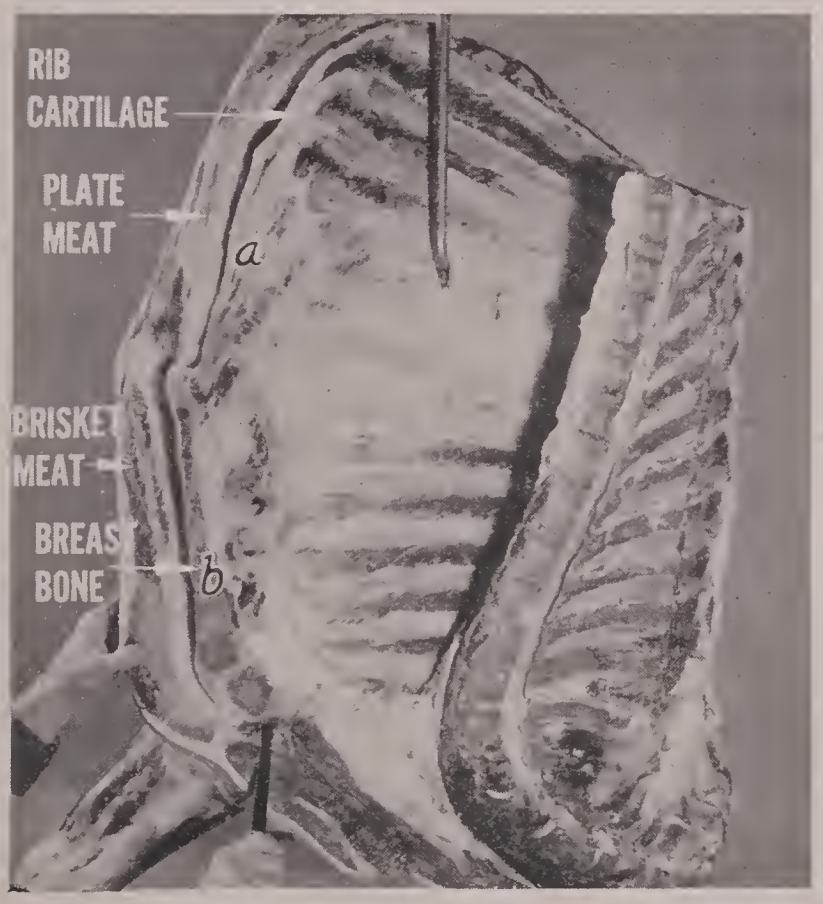
3. Remove skirt and plate meat. Use for stewing or grinding.

Trimming the Brisket



Remove excess fat from edge of brisket.

Loosening Plate and Brisket



Cut under rib cartilages (a) and breastbone (b) to loosen plate and brisket meat.

Trimming the Back

1. Remove strip of fat which covers ends of feather bones.

2. Remove ends of feather bones at point where they were scribed with saw.

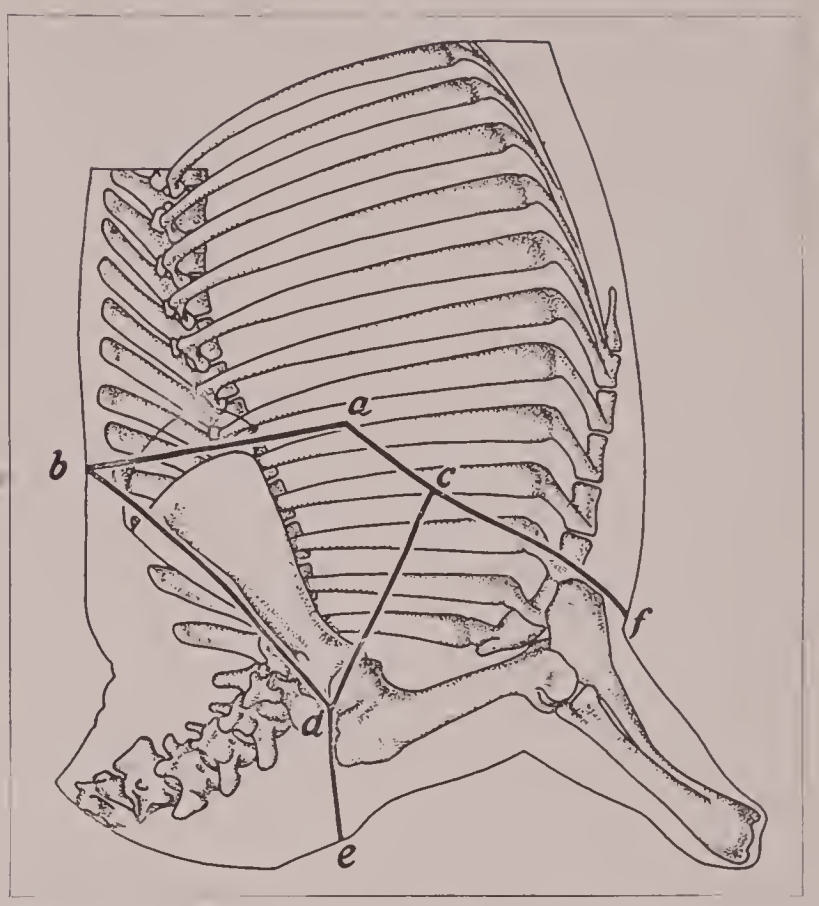
3. Cut back under remaining sections of feather bones to loosen these bones from meat.

4. Pull back strap from full length of forequarter.

Making Cuts from Outside Chuck

With forequarter hanging from hook, cut between 5th and 6th ribs from (a) to (b). Remove arm-shank by first cutting from (c) across the ball and socket joint at (d), continuing straight down to (e), then cutting through seam over brisket beginning at line (c—f).

Cut over ridge of bladebone from (d) to (b). Take off thin outside neck meat and fat pocket by following seam over neck. Remove remaining section of outside chuck by starting at line (a—c) and cutting through seam under bladebone.



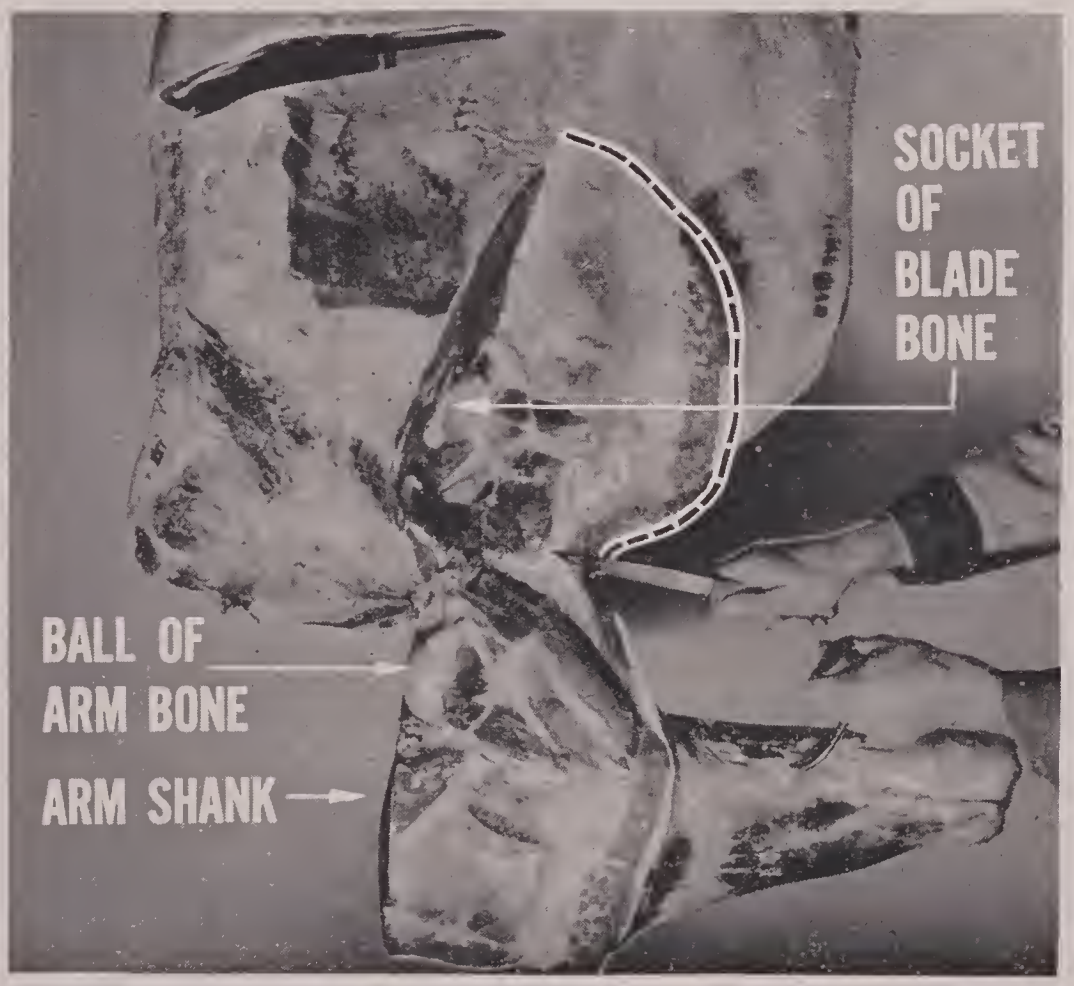
1. Mark forequarter by inserting boning knife between 5th and 6th ribs.

2. Using mark as guide, cut through meat to backbone.

Removing the Arm-Shank

1. Cut across clod and over socket joint.

2. Cut through seam between arm-shank and brisket.



3. Cut through socket joint and remove arm-shank.

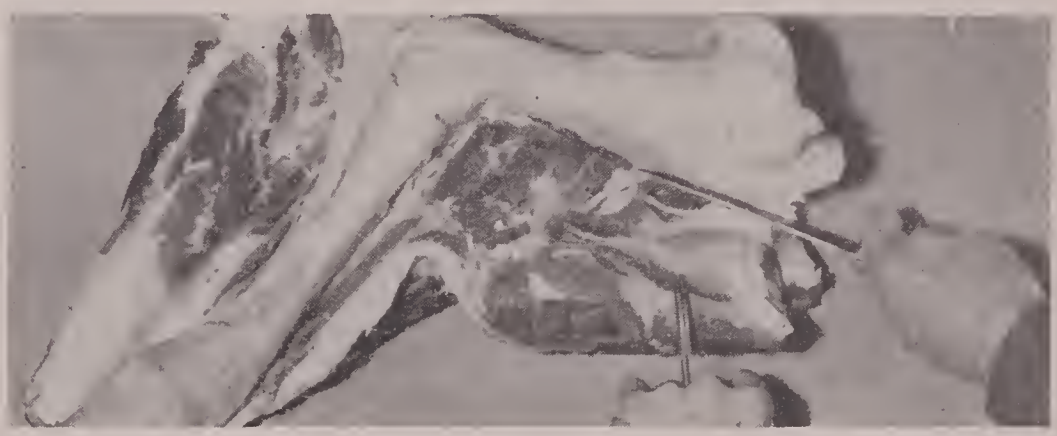
Removing the Lower Half-Clod

1. Separate lower half-clod from arm-shank.

2. Lower half-clod for braising or roasting.

Trimming Arm and Shank Bones

Trim meat from arm and shank bones. Use for stewing or grinding.



Removing Outside Neck Meat

1. Cut through meat over edge of ridge bone.

2. Remove outside neck meat. Use for stewing or grinding.

Removing the Remainder of Outside Chuck

1. Follow seam as first step in removing remainder of outside chuck.

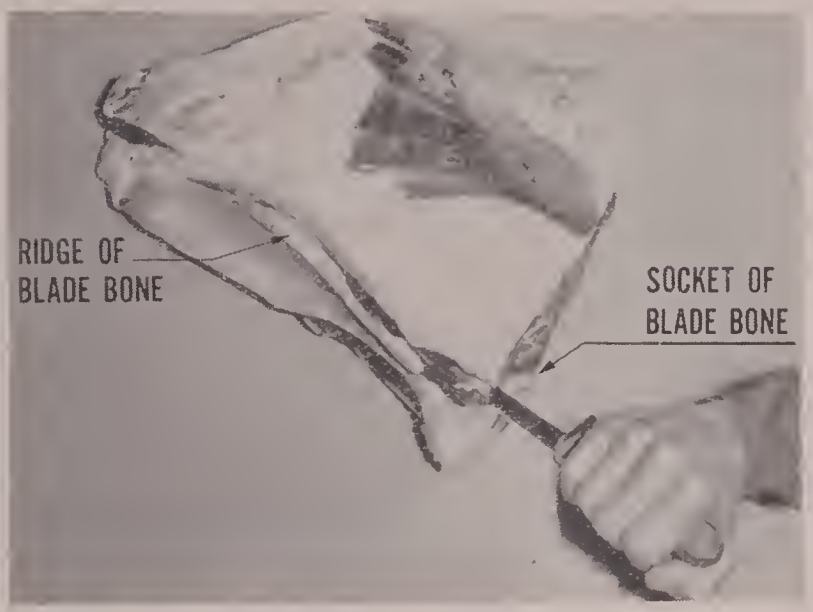
2. Continue along seam to complete removal of remainder of outside chuck.

Removing the Chuck Tender

1. Cut along ridge of bladebone to remove chuck tender.

2. Chuck tender for braising or roasting when necessary.

Removing the Bladebone from Upper Half-Clod

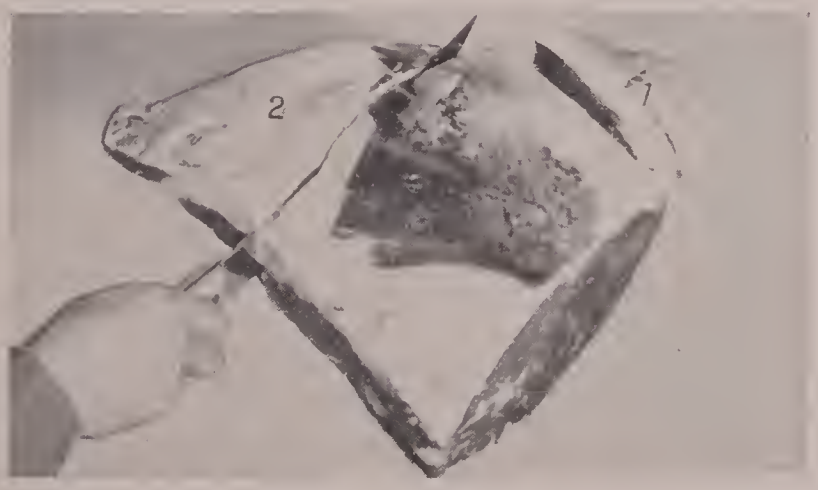


1. Cut along ridge and around head of bladebone.

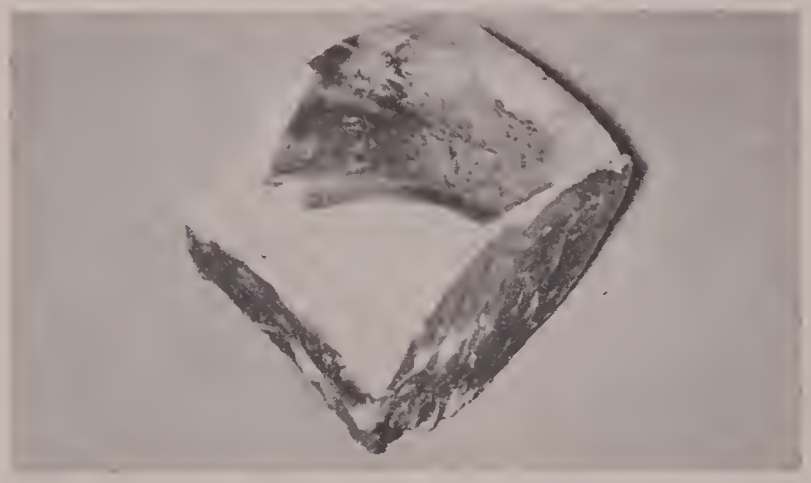
2. Trim thin layer of meat from bladebone.

3. Remove bladebone.

Trimming the Upper Half-Clod



1. Cut thin meat (1 and 2) from upper half-clod.



2. Upper half-clod for braising, or roasting when necessary.

Cutting Remainder of Forequarter

1. Cut close to back muscle to separate plate (1) and brisket (2) from rib (3) and inside chuck and neck (4).

2. Cut between 5th and 6th ribs to separate brisket from plate.

Removing the Boneless Plate

1. Cut close to ribs to remove plate meat.

2. Boneless plate for braising, stewing or grinding. Trim off surplus fat before cooking meat.

Removing the Boneless Brisket

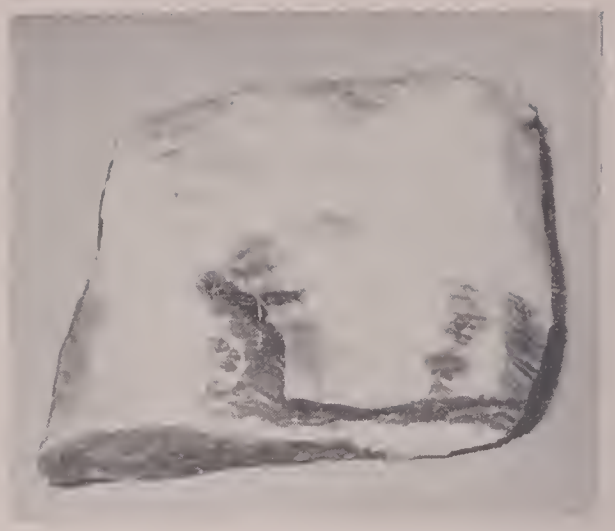
Cut close to ribs to remove boneless brisket.

Cutting and Trimming the Brisket

1. Cut point (piece No. 1) from brisket.

2. Divide remainder into two pieces (No. 2 and No. 3).

3. Remove excess fat from brisket piece No. 2.



4. Boneless brisket (piece No. 2) for braising, stewing, or grinding.

5. Separate lean from fat in pieces No. 1 and No. 3. Use lean meat for stewing or grinding. Render the fat.

Removing and Trimming the Boneless Rib

1. Remove boneless rib by cutting close to rib bones.

2. Remove outside chuck muscle and blade cartilage by following natural seam.

3. Cut thin layer of fat from outside chuck muscle and replace it over unprotected section of boneless rib.

4. Boneless rib for roasting or for cutting into steaks.

Removing the Inside Chuck and Neck

1. Cut close to ribs to partially remove inside chuck and neck.

2. Finish removal by cutting through joint between neck bone and backbone.

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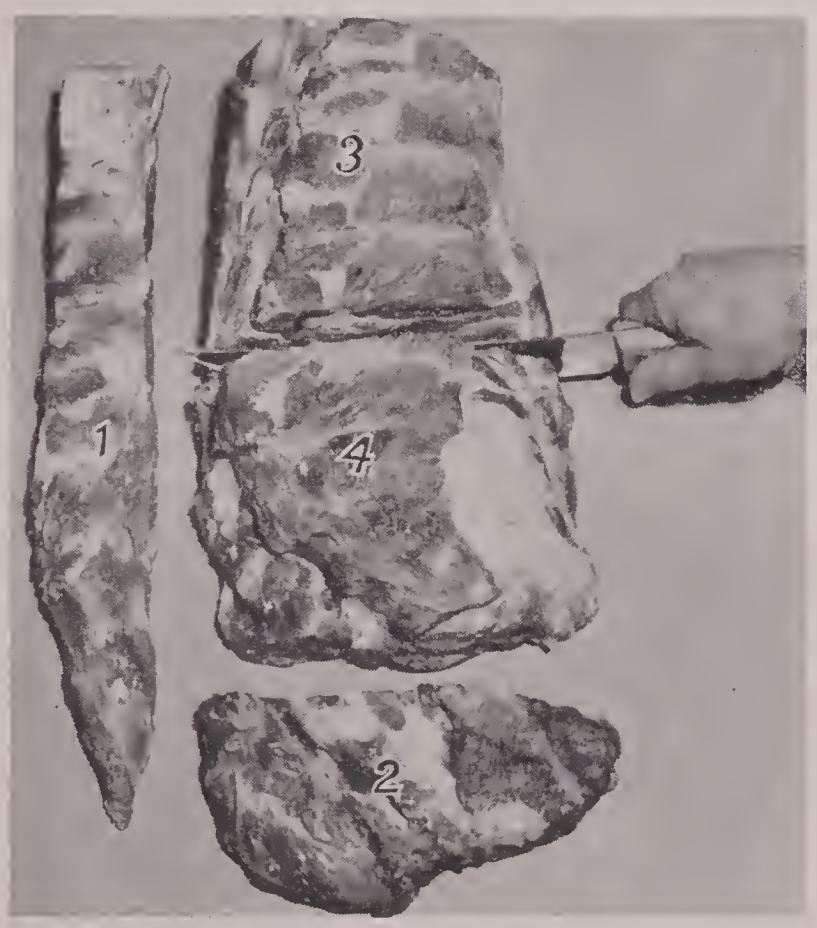
Cutting the Inside Chuck and Neck

1. Remove strip of meat from throat side of neck bone.

2. Cut underneath neck bone and lift it from neck meat.

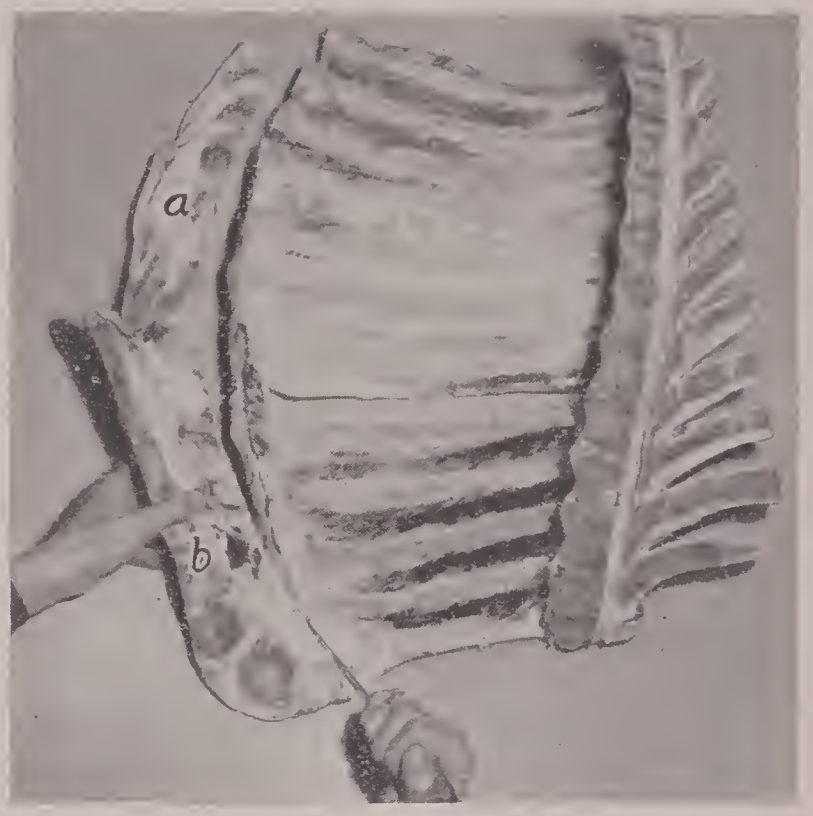


3. Trim off thin meat (pieces No. 1 and No. 2). Cut remainder into two pieces (No. 3 and No. 4).

4. Inside chuck (No. 3) for roasting or for steaks. Boneless neck (No. 4) for braising, stewing, or grinding.

Trimming the Bones

1. Trim fat and strip of meat from inside of chine bone.

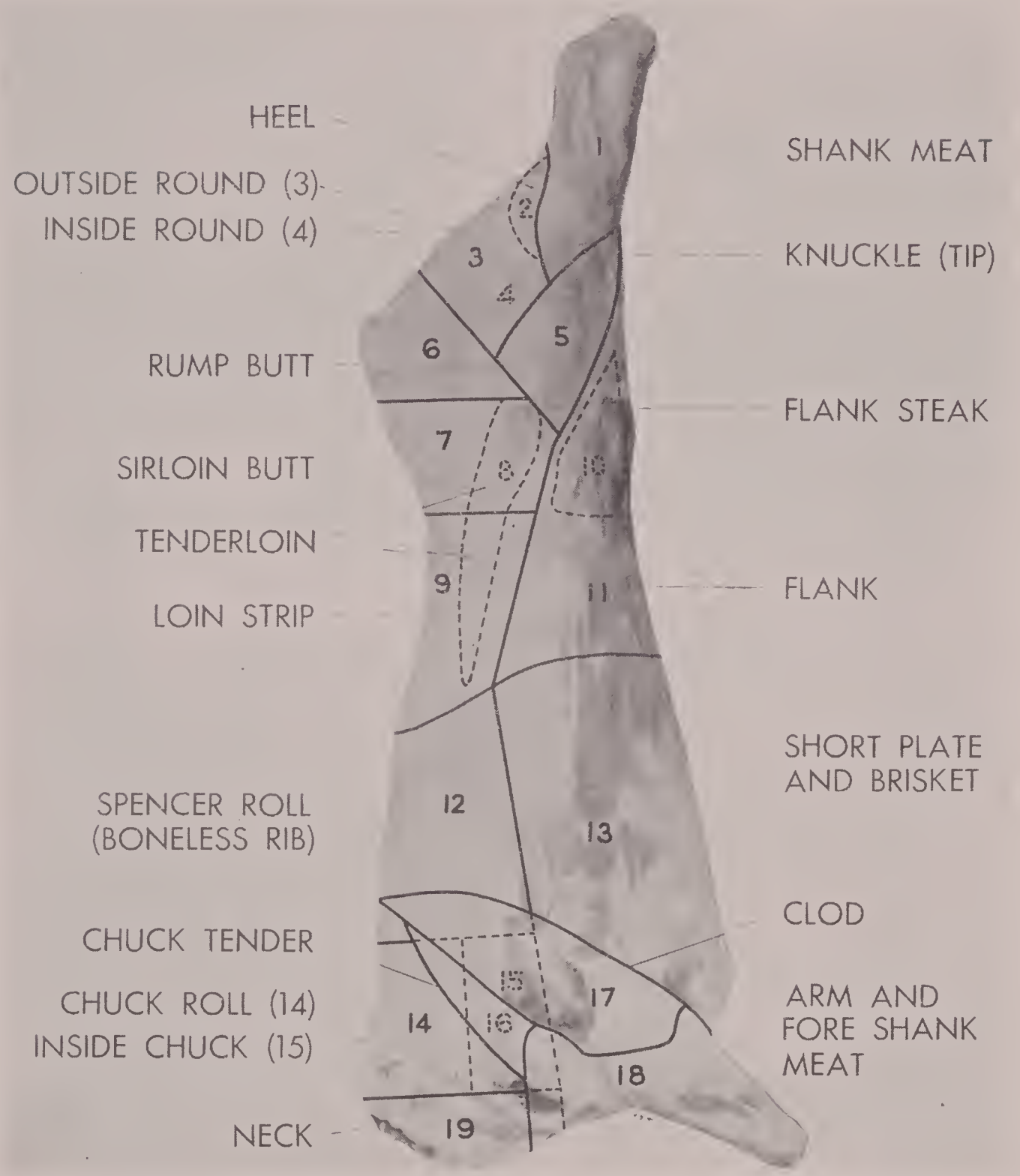


2. Cut through cartilages at ends of rib bones to remove rib cartilages (a) and breastbone (b).

3. Trim meat (1) from rib cartilages and breastbone (2). Remove rib fingers (3) by cutting along the sides of each rib bone. Use boneless meat for stewing or grinding. Saw and use bones for stock.

BEEF CHART

LOCATION AND NAMES OF CUTS IN BEEF: BONELESS, FROZEN



Group I. Roasting and Frying:

4—Inside (top) round.
5—Knuckle (tip).
6—Rump butt.
7—Sirloin butt.
8—Tenderloin.
9—Loin strip.
12—Spencer roll (boneless rib).
14—Chuck roll.

Group II. Stewing and Boiling:

3—Outside (bottom) round.
13—Short plate and brisket.
15—Inside chuck.
17—Clod.

Group III. Chopped Beef:

1—Hind shank meat.
2—Heel.
10—Flank steak.
11—Flank.
16—Chuck tender.
18—Arm and Fore shank meat.
19—Neck.
Rib fingers and trimmings.

Section 2

Beef: Boneless, Frozen

To meet the current demands of the Fleet and advance bases the greater part of the beef component of the Navy ration is purchased in the form of frozen boneless beef.

For this product steer and heifer carcasses within specified weight limits are selected for boning from U. S. Choice, Good, and Commercial grades. The operations of boning, trimming, grinding, packaging, and freezing are efficiently handled at federally-inspected meat packing plants and supervised by Army veterinarians.

According to the applicable specification, the division of cuts, disposition of bones, fat, etc., is as follows: Excluded from delivery are bones, excess fat, kidneys, blood clots, bruised portions, ligaments and tendons, and serous membranes removed from skirts, flanks, and short plates. The boneless beef is divided and packed into three groups according to the tenderness of the meat:

(a) *Beef packed for "Roasting and Frying."*—Includes inside (top) rounds, knuckles, tenderloins, boneless rumps, sirloin butts, loin strips, boneless ribs (Spencer rolls), inside chucks (chuck rolls), and the outside (bottom) rounds when necessary to provide the correct proportion of roasting and frying beef.

(b) *Beef packed for "Stewing and Boiling."*—Includes outside (bottom) rounds, clods, boneless chucks (minus chuck tender, arm-bone muscle, and chuck roll), plates (briskets and short plates), flanks and flank steaks.

(c) *Beef packed as "Chopped Beef."*—Includes arm-bone muscles, chuck tenders, skirts, shank meat, rib covers, rib fingers, neck meat, and all loose trimmings. Provision is made that there be an even distribution of lean and fat in the ground product and that the product contain no more than 30 percent of fat by analysis. The addition of fat must be limited to that which may be classed as No. 1 fat, such as cod fat. The chopped or ground beef is formed into rectangular blocks weighing about 12 pounds each.

This division of boneless cuts from carcass beef produces approximately 40 percent of beef for roasting and frying, 30 percent for stewing and boiling, and 30 percent of chopped or ground beef.

As soon as the beef has been boned, the cuts and chopped meat are wrapped in waxed paper packages and packed in fiberboard boxes. Except for the chopped beef, the waxed paper packages weigh not more than 10 pounds apiece. Each box contains at least four packages and weighs between 45 and 55 pounds net.

After packing, the product is taken to a sharp freezer and kept there until solidly frozen. Following freezing and until shipment is made, the beef is held in a freezer, preferably at a temperature not higher than 0° F. and never at a temperature higher than 10° F.

For use afloat, at advance bases, and at shore activities (when available), frozen boneless beef has many advantages over carcass beef of the same grade. A few of these advantages are:

(a) A saving of 30 percent in weight and 60 percent in storage space. This is of great importance because of overworked transportation facilities. The saving of refrigeration space aboard ships is a tremendous advantage.

(b) A maximum yield of boneless meat from the carcass because the beef is cut in packing plants by skilled men with the most modern equipment.

(c) The meat is boned and packaged in refrigerated rooms, thus retarding the growth of harmful bacteria. This ideal is seldom attained in a Navy butcher shop or galley.

(d) All bones and excess fat remain at meat packing plants where they may be converted into such important items as glue, glycerin, and bone meal.

(e) The meat arrives at the galley in such a manner that, when properly cooked, delicious beef dishes can be served by men with little meat cutting experience.

(f) Frozen boneless beef, packed in boxes, is far better protected from contamination by dirt, flies, etc., than is beef in quarters.

(g) It is easier to make the meat items correspond to the bill of fare! Break-outs of beef for a particular meal are easy when frozen boneless beef is used. Packages contain exactly what the label says. Many have had the disappointing experience of trying to use all the forequarter for steaks.

(h) The difficulties encountered in leading carcass beef aboard ship are eliminated.

Since frozen boneless beef is being so widely used by the Navy, particularly afloat, some of the important points which should be observed in its handling and preparation are noted here:

1. *Defrosting frozen boneless beef.*—When facilities are available, frozen boneless beef should be allowed to defrost gradually at temperatures ranging from 36° F. to 38° F. There will be occasions, however, when limited time or lack of facilities will make it necessary to thaw the meat at temperatures prevailing outside the refrigeration space, even though this results in increased loss of meat juices. When necessary to thaw frozen boneless beef at temperatures prevailing in the butcher shop or galley the meat should remain in the box just as it comes from the meat packing plants.

The boxes furnish good insulation which permits all the meat to thaw uniformly. If the meat is thawed at high temperatures with no protection, there is too much chance of the surface of the meat starting to spoil before the inside is completely thawed.

Another emergency method of thawing frozen boneless beef outside of refrigeration is to open the boxes and distribute the wrapped pieces in the cover and bottom of the box. This is not recommended when time will permit thawing the meat in the unopened original container.

Where electric meat cutters (band saws) are available the time between the break-out and use of frozen boneless beef can be speeded up by using the meat cutter to:

(a) Cut the "roasting and frying" beef into steaks.

(b) Cut the "stewing and boiling" beef into small pieces for stewing.

(c) Cut the blocks of ground or chopped beef into smaller pieces to hasten thawing. Ground meat dishes will be more satisfactory when the chopped meat in the blocks is thoroughly mixed after thawing.

2. *Cooking frozen boneless "stewing and boiling" beef.*—Since stews are always cooked in the presence of moisture it makes no great difference whether or not this meat is defrosted before cooking. After cutting into pieces of a suitable size, cook at a *simmering* temperature allowing additional time for the cooking process.

3. *Cooking frozen boneless "roasting and frying" beef.*—This product can be roasted satisfactorily without previous thawing. Roasts that are partially thawed before being placed in the oven may also be roasted with good results. Under these conditions a very low oven temperature (250° F.) *must* be maintained; otherwise the surface of the meat will be burned and charred before the inside is thawed and cooked. Frozen meat (not partially defrosted) requires approximately twice as long to roast at 250° F. as fresh chilled or completely defrosted meat at 325° F.

For cutting steaks the pieces should be allowed to thaw just enough for easy cutting. Steaks can be cut more uniformly by hand or machine when there is still some frost in the boneless piece.

4. *Frozen meat that has been thawed is perishable* and should be used as soon as possible. It should not be refrozen. Break-outs, therefore, should be consistent with amounts to be served.

Section 3

Beef Roasting Test

The Navy cook will find it advantageous to use a moderate oven temperature (325° F.) in roasting meat. Roasting experiment illustrated below shows that moderate temperature avoids excessive shrinkage. More servings are obtained; meat is juicier and better flavored. Roast cooked at moderate temperature shrunk about 20% less than one cooked at high temperature (500° F.).

Roast No. 1

Before Cooking: Each Roast Weighed Exactly 9 lbs.

Roast No. 2

Roast No. 1

After Cooking: Both Roasts Were Cooked to Medium Done . . .

← No. 1 at 325° F.

No. 2 → at 500° F.

(Note difference in quantity of drippings)

Roast No. 2

Roast No. 1		Roast No. 2
7 lbs. 2 oz.	Weight After Cooking	5 lbs. 12 oz.
1 lb. 8 oz.	Weight Loss	3 lbs. 4 oz.
16.66%	Percentage Loss	36.11%
4 hrs.	Cooking Time	2 hrs. 30 mins.

CHAPTER 3

PORK

Most pork bought by the Navy comes aboard in the form of wholesale cuts such as loins, smoked hams, etc. The heavy lines on the bone chart, page 49, show the division of the pork side into the major wholesale cuts.

Pork cuts cannot be classified as those which are always bought fresh or cured and smoked. Almost every cut of pork may be, and often is, cured. At the same time many cuts usually cured may be purchased as fresh pork.

Carcass parts not used for cuts are rendered into lard or made into various types of sausage.

Pork cuts require additional cutting.—The size and form of wholesale pork cuts make them easy to handle, consequently these cuts are often taken to the galley for cooking in a form difficult for carving and serving to best advantage. For instance, smoked hams frequently are cooked whole, without preliminary cutting. Cooking whole should not be practiced for these reasons: (a) Excess fat removed from the outside of the ham is more desirable for cooking purposes than fat in the form of drippings. (b) If the shank bone is removed before cooking, it is a very desirable seasoning piece, but if left in the meat during cooking, the meat around the shank will fall apart during carving and the shank bone's value for seasoning is largely lost. (c) If the leg and aitch bones are removed before cooking, carving is much easier and less complicated.

Utilizing pork to the best advantage.—The best pork cutting methods are given in this chapter. These methods are designed to produce the largest number of uniform servings from fresh and smoked pork cuts most often used by Navy messes.

Cutting Methods Illustrated:

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Pork bone chart	49
Pork loin	50
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Making semiboneless pork loin	51–52
Making semibonelesss pork loin roast	52–53
Cutting pork loin chops, boneless	53–54
Cutting pork loin chops, bone-in—by machine and by hand	55
Ham, fresh or smoked	56
Preparing ham for roasting, semiboneless—fresh or smoked	56–57
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Preparing one boneless roast from ham—fresh or smoked	58–59
Cutting ham slices, fresh or smoked, by machine and by hand	59–60
Making seasoning pieces from ham shank—fresh or smoked	61
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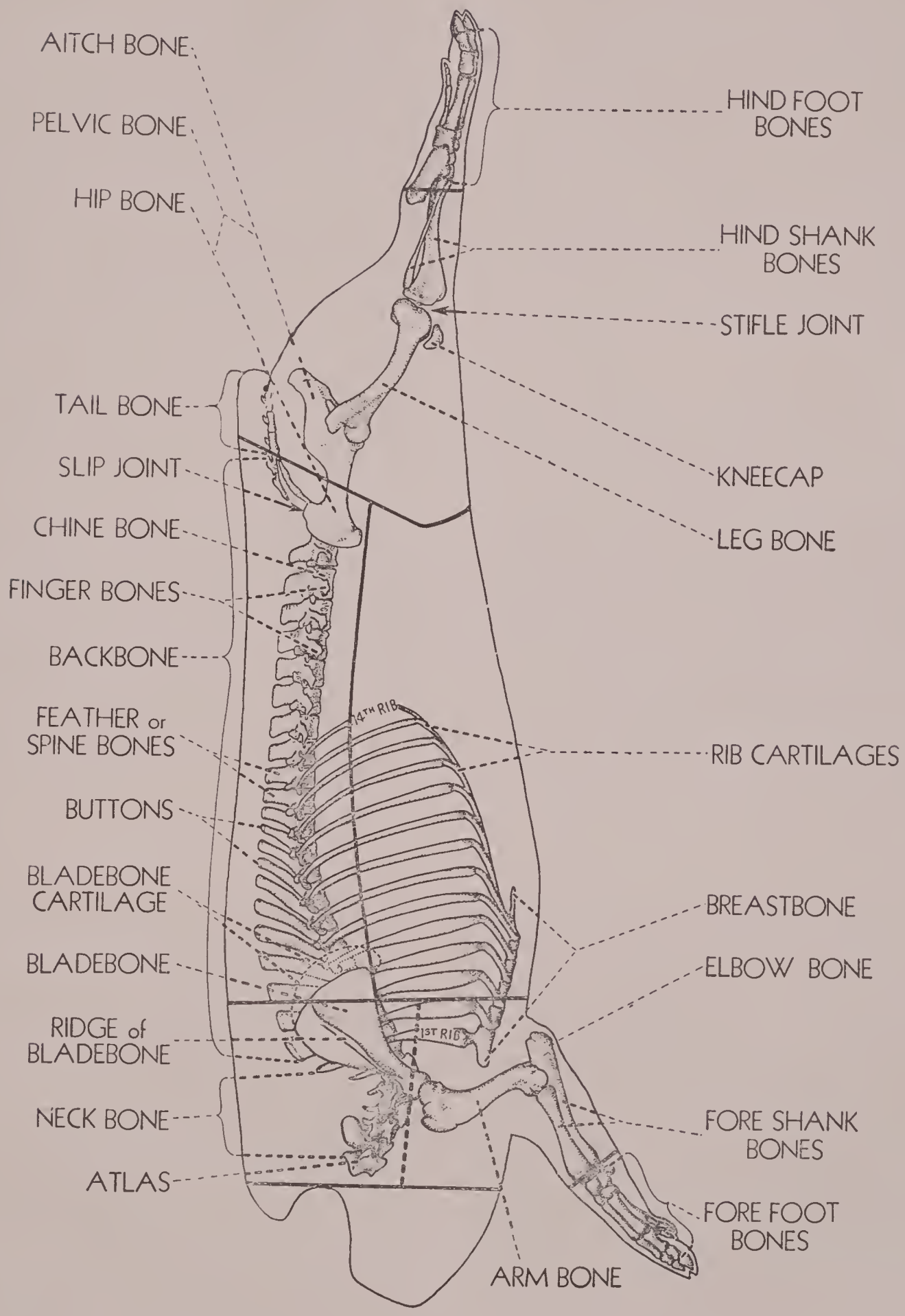
PORK CHART

LOCATION, STRUCTURE, AND NAMES OF BONES

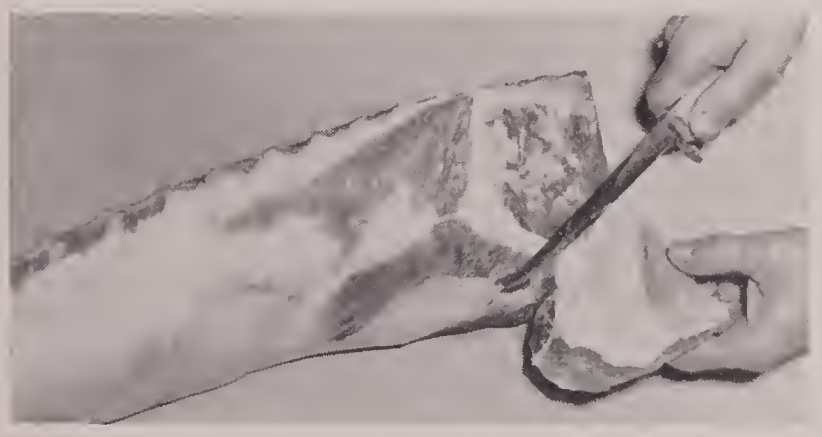


Cutting the Pork Loin

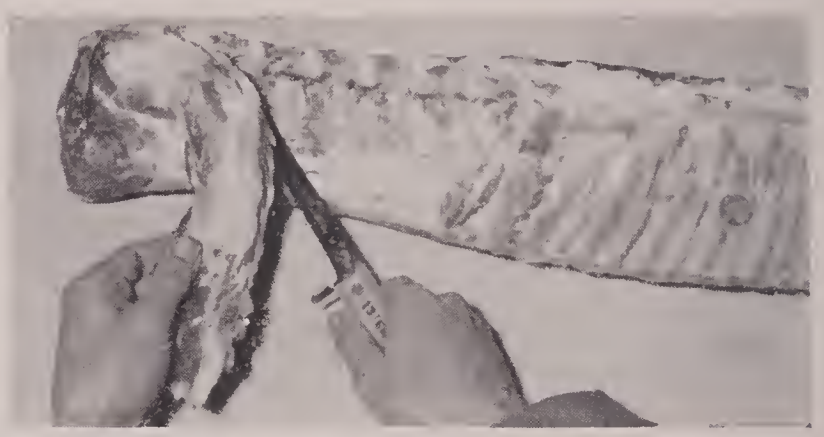
Pork Loin

The following illustrations show a number of ways of using this popular pork cut. The method of making the semiboneless pork loin, as frequently procured from meat packers, is illustrated. This cut is further converted into a boneless loin roast. Also shown is an easy-to-follow method of making boneless pork loin chops. When chops are to be cut with the bone in, the steps showing the cutting by machine and by hand will be helpful.

Basic Steps



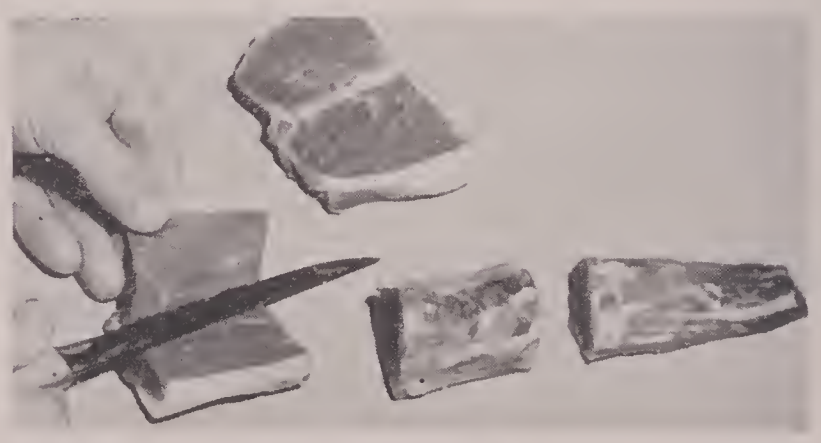
1. Remove blade bone.



2. Remove tenderloin.

Cutting the Tenderloin

1. Cut tenderloin into three or four pieces.



2. Split pieces of tenderloin into double (butterfly) servings, or stand pieces on end and flatten with side of cleaver.

Semiboneless Pork Loin

The pork loin in this form is frequently procured. For Navy use it has several advantages over regular pork loins:

(a) It is more compact. A saving of 10 percent in weight and about 30 percent in space is accomplished.

(b) The pork loins are prepared by skilled men, thus assuring the attainment of maximum meat yield.

(c) Since the meat is boned and wrapped under refrigeration, the growth of harmful bacteria is held to a minimum.

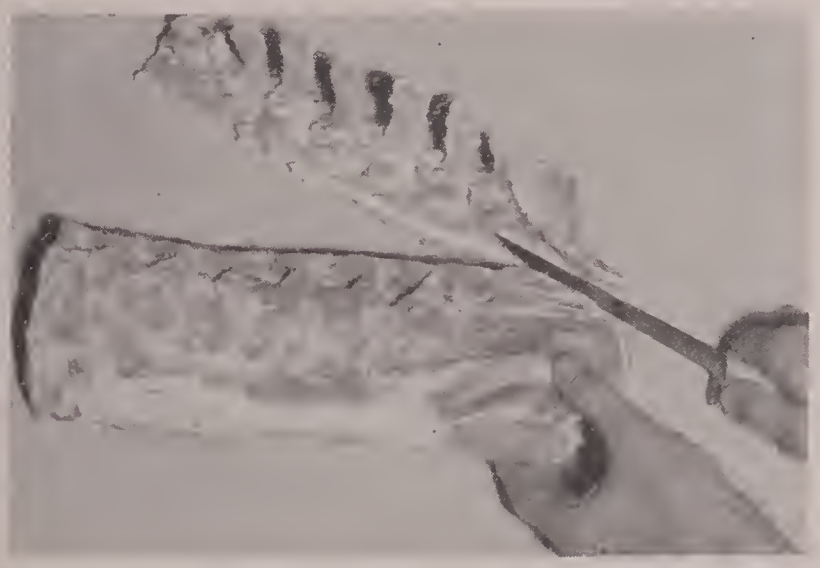
(d) Chops of uniform thickness may be cut from end to end.

Making Semiboneless Pork Loin

The following illustrations show how to convert regular pork loins into semiboneless pork loin cuts. The blade bone and tenderloin are removed as shown on page 50.

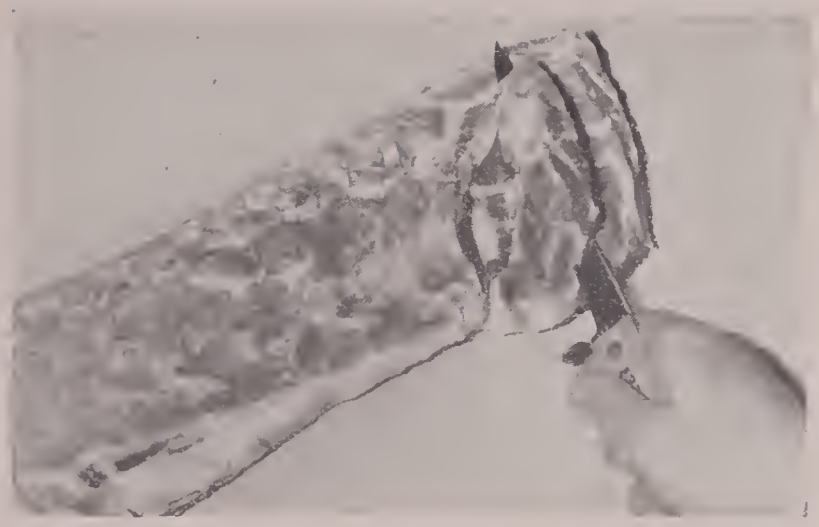
1. Divide loin into two pieces of uniform length.

2. Cut through slip joint to separate hip bone from backbone.



3. Remove backbone.

4. Remove hip bone, being careful not to cut through outside surface of loin.



5. Cut and fold small piece of meat to fill cavity where hip bone was removed.

6. Saw across base of ribs.

7. Remove backbone.

8. Semiboneless pork loin.

Making Boneless Pork Loin Roast

When the semiboneless pork loin cuts are to be used for roasts, the rib section should be removed so the two boneless pieces may be tied into one boneless roast as shown in the following illustrations:

1. Remove ribs. Cut into two pieces for roasting or braising.

2. Place boneless strips together with thick ends opposite each other and fat covering on outside.

3. Tie boneless pieces together to make a uniform roll.

4. Boneless pork loin roast.

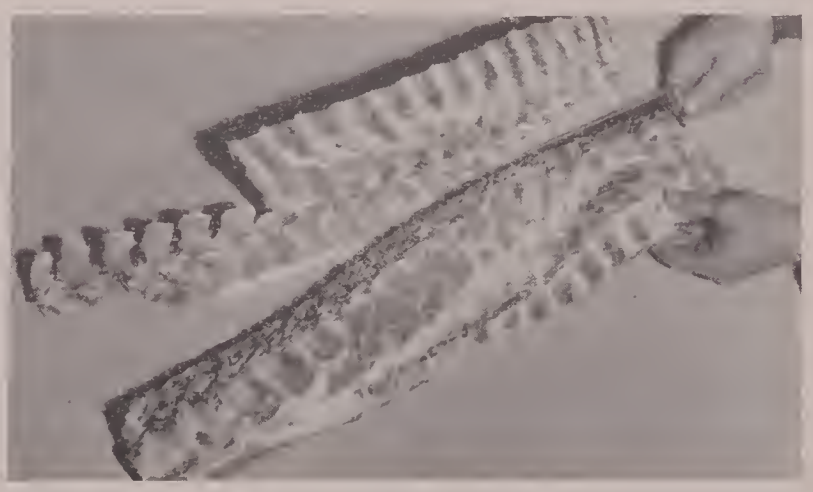
Cutting Pork Loin Chops, Boneless

From regular pork loins the blade bone and tenderloin are removed as illustrated on page 50.

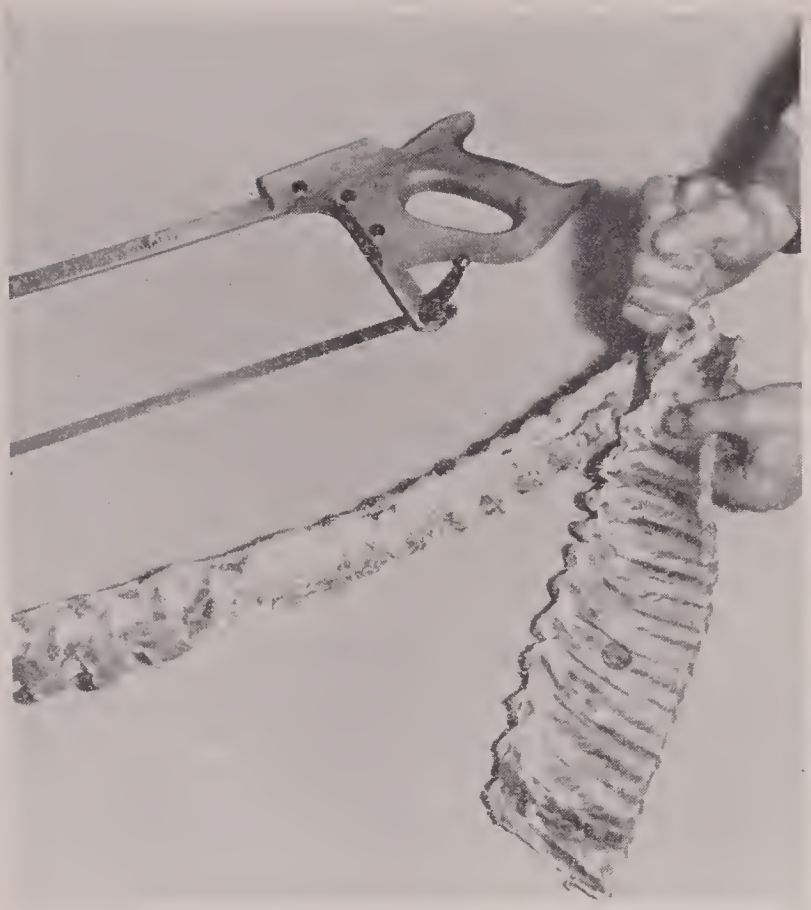
1. Cut meat from outside of hip bone.

2. Cut boneless piece of meat into single and double chops of uniform size.

3. Remove bones (hip bone and part of backbone) by cutting through loin close to hip bone.



4. Separate ribs and backbone from loin strip.



5. Separate rib bones from backbone, using either a saw or knife.

6. Cut rib section into individual servings for roasting (baking) or braising.

7. Cut chops of uniform size. They may be double or single depending on size and thickness of loin.

8. Boneless pork chops from one loin. Ideal for breading and frying.

Cutting Pork Loin Chops, Bone-in

By Machine

By Hand

1. Start cutting chops from shoulder end of loin.

2. Turn remaining piece end for end and finish cutting loin into chops.

3. Pork loin chops for braising and frying.

Cutting Ham—Fresh or Smoked

The methods of cutting illustrated here apply to either fresh or smoked hams, therefore only one set of illustrations is used.

Preparing Ham for Roasting, Semiboneless—Fresh or Smoked

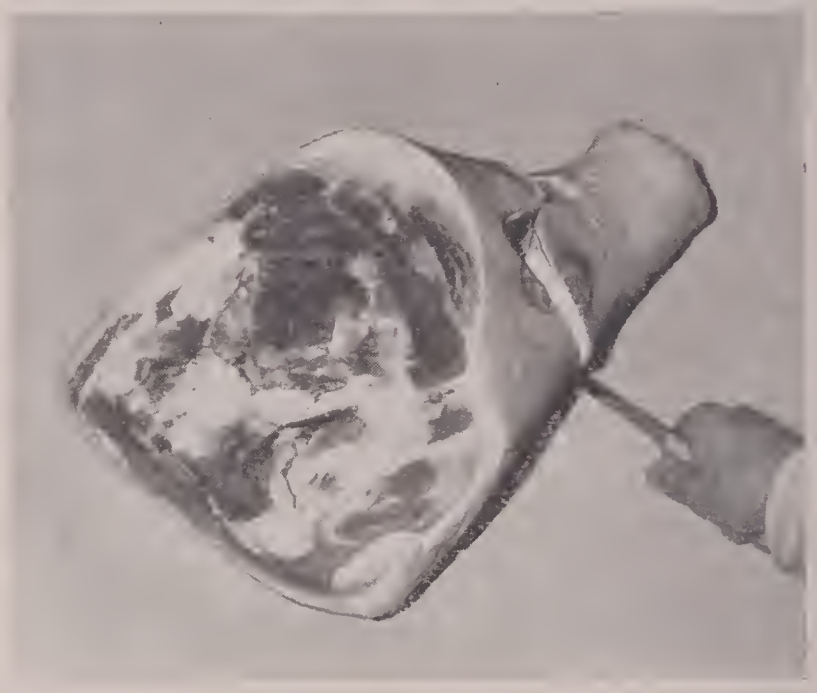
Some advantages of ham prepared in this manner are as follows:

(a) Less work in the butcher shop.
(b) Less shrinkage in cooking.

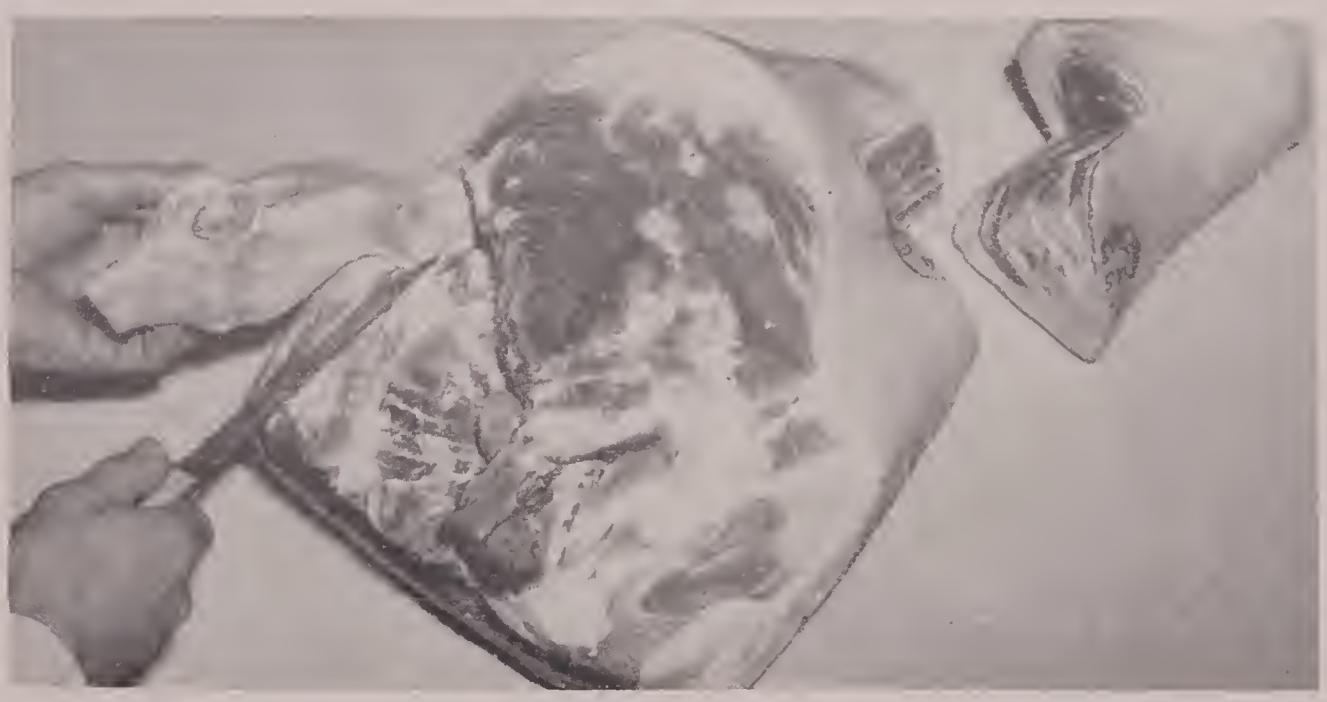
Some of the disadvantages:

(a) Requires more time to cook.
(b) Cannot be easily carved unless leg bone is removed with care.

1. Whole ham.

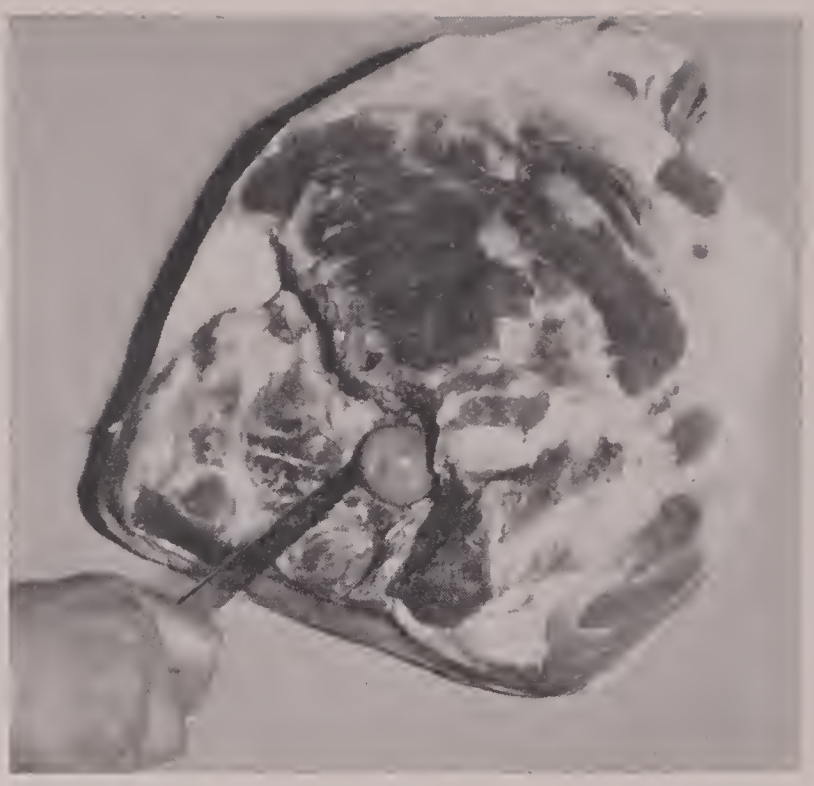


2. Remove hock at stifle joint leaving most of shank meat on ham. Use hock for seasoning, grinding, etc.



3. Unjoint and take out aitch bone.

4. Remove skin and excess fat.



5. Loosen meat around ends of leg bone. Ham is ready for cooking.

After cooking, the ham, prepared according to the steps just illustrated, should be carved as follows:

Remove knuckle section by cutting through meat to leg bone on each side of ham. Remove kneecap from this piece. Lift out leg bone. Cut with the grain to split cushion of ham into inside and outside sections.

This method of splitting the cooked ham provides three boneless pieces of uniform size. These may be carved across the grain either by hand or on the slicing machine.

Preparing Two Boneless Roasts from Ham—Fresh or Smoked

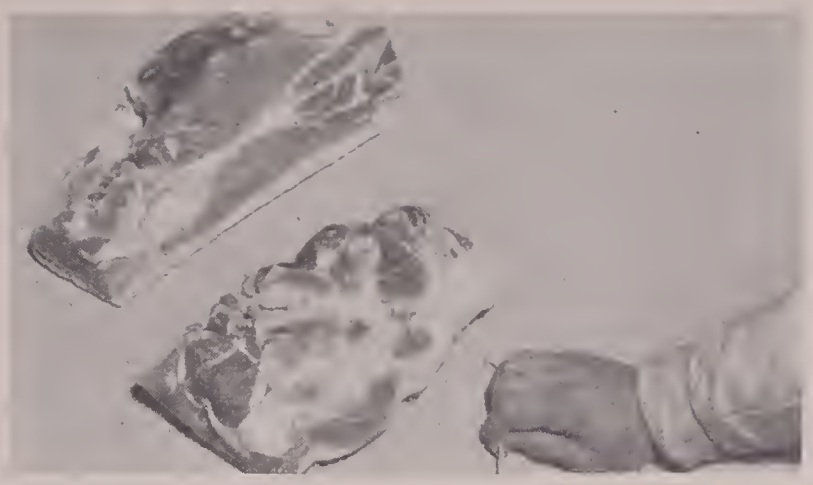
When cooking time is limited and the hams weigh more than 12 pounds, it is best to make two boneless roasts from the ham. When hams are cut by this method, the pieces are ready for carving after cooking.

The cutting procedure in the illustration immediately following is a continuation of cutting the semiboneless ham. The hock, aitch bone, skin, and excess fat are removed as shown on pages 56–57.

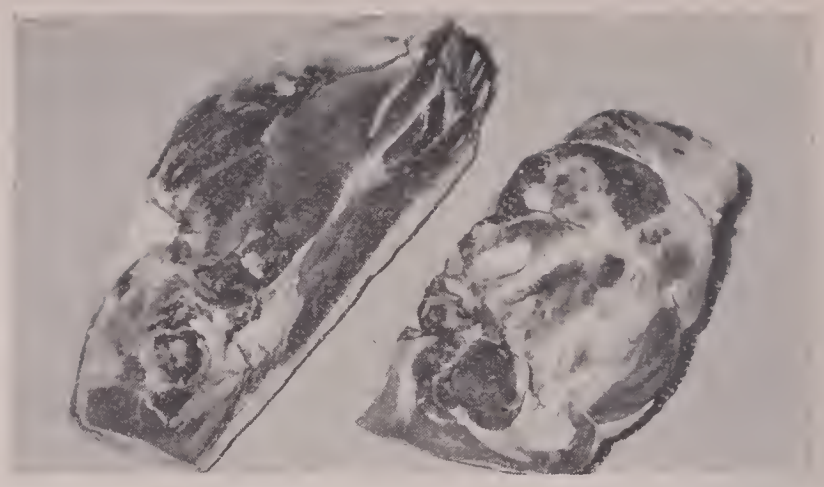
1. Split ham into cushion (1) and knuckle (2), leaving leg bone in knuckle piece.

2. Remove leg bone and kneecap from knuckle half of ham.

665701°—46——5



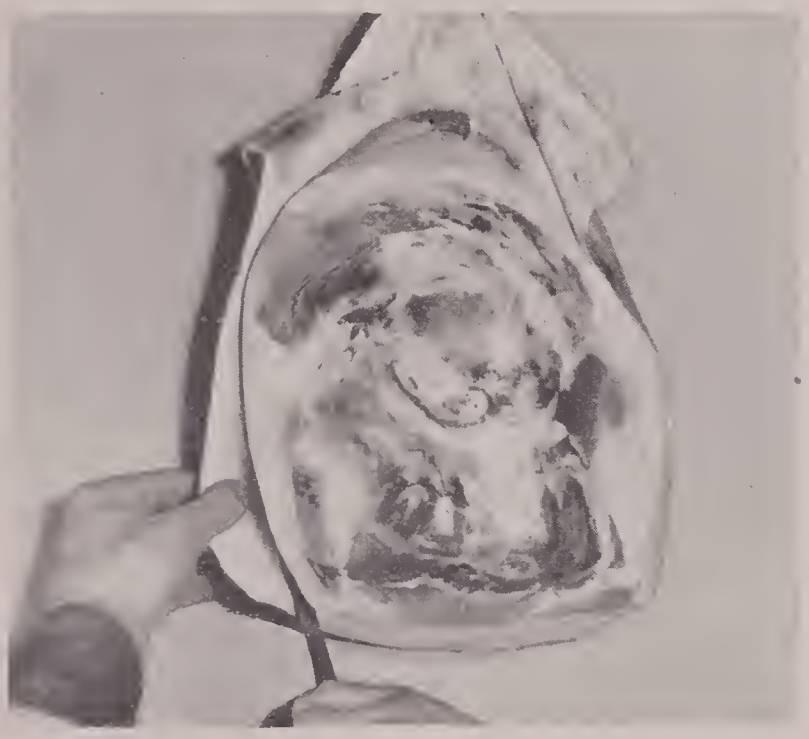
3. Tie knuckle piece.



4. Two boneless ham roasts—fresh or smoked.

Preparing One Boneless Roast from Ham—Fresh or Smoked

This method is especially desirable for hams weighing less than 12 pounds.



1. Remove skin and excess fat.

2. Remove hock at stifle joint, take out aitch bone. Cut around and remove leg bone.

3. Cut piece of cushion and fold into cavity formed by knuckle end of leg bone.

4. Cut in front of kneecap parallel with loin end of ham.

5. Twist knuckle section and lay over portion of ham where aitch bone was removed.

6. Use first string to hold knuckle section in place.

7. Tie next string lengthwise around boneless ham.

8. Boneless ham roast—fresh or smoked.

Cutting Ham Slices Fresh or Smoked by Machine and by Hand

This method of cutting yields a maximum number of ham slices and most efficiently uses the ham butt piece.

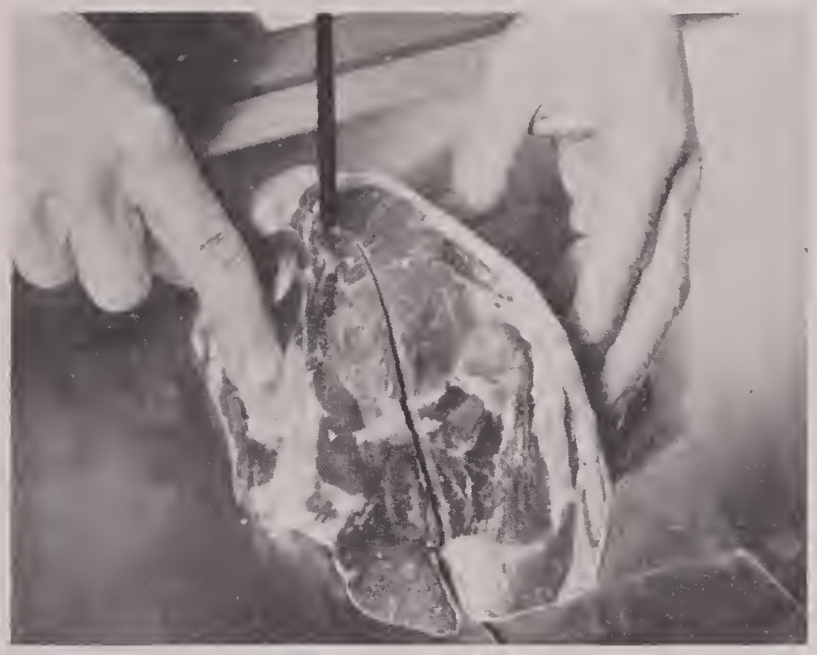
1. Remove skin and excess fat.

Cutting Ham Slices

By Machine

By Hand

2. Cut parallel with aitch bone to remove ham butt.



3. Split ham butt. Use the smaller (aitch bone) piece for seasoning.

4. Cut slices from ham butt piece.

By Machine

By Hand

5. Cut center slices until shank is reached.

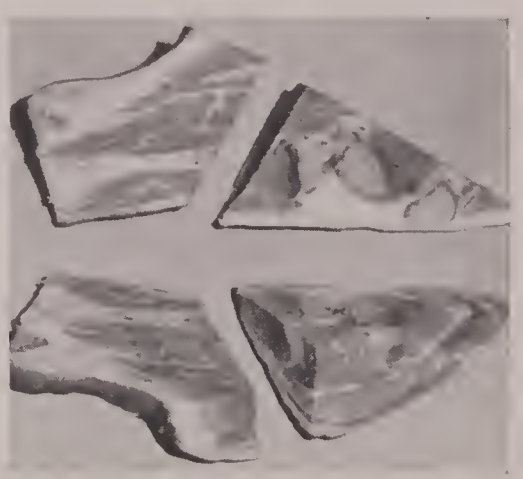
Making Seasoning Pieces From Shank—Fresh or Smoked

1. Ham shank.

6. Ham slices for griddle-broiling and frying—fresh or smoked.

2. Split shank through center.

3. Cut each half shank into two pieces.



4. Shank pieces for seasoning.

Boning the Ham Shank

Remove skin, excess fat, and bone. Use boneless meat for diced ham, grinding, etc.

1. Pork shoulder.

Cutting Pork Shoulders

The illustrations to follow suggest methods of using this fresh pork item as boneless roasts or pork steaks.

Removing and Cutting the Hock—By Machine

2. Remove hock just above elbow joint.

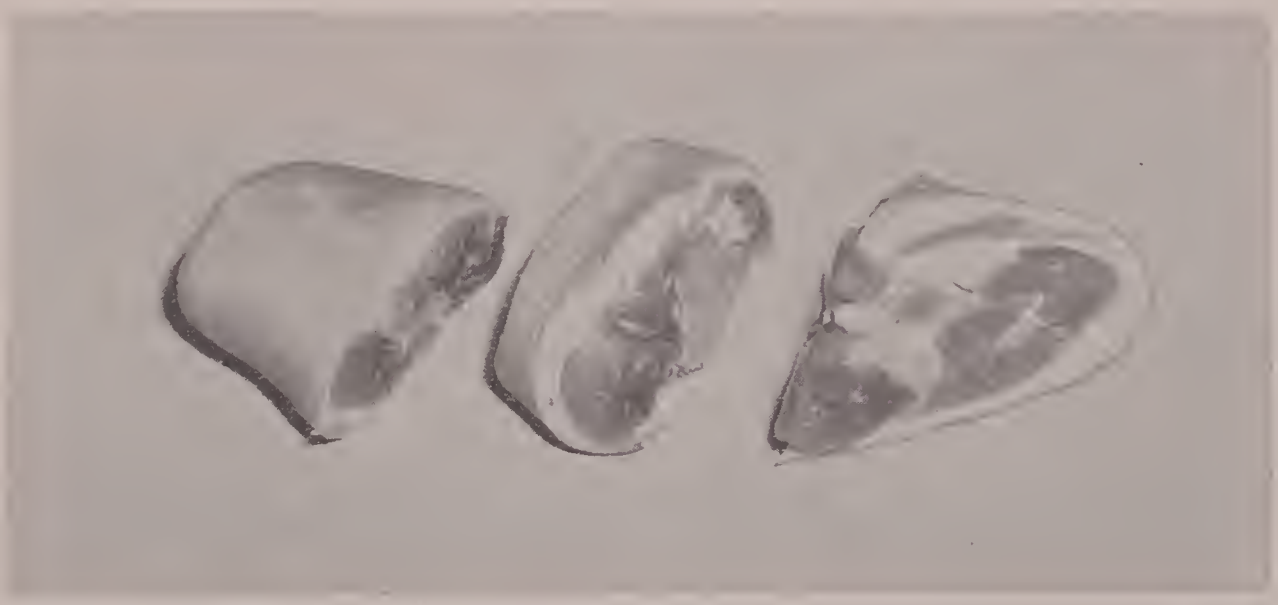
3. Split hock through center.

4. Cut each half hock into two pieces.

Removing and Cutting the Hock—By Hand

1. Remove hock just above elbow joint.

2. Divide hock into three pieces by sawing across bone.



3. Seasoning pieces from pork hock.

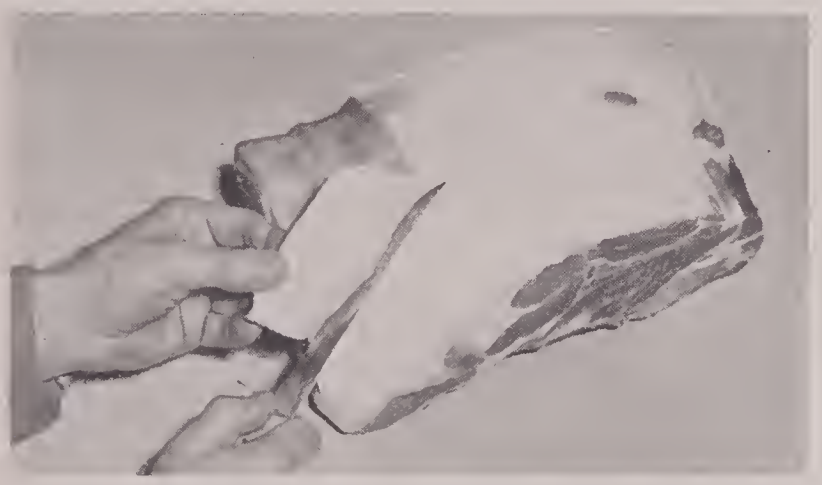
Boning the Pork Hock

1. Remove skin from hock.

2. Cut around bone and lift from meat.

Making Two Boneless Roasts from Pork Shoulder

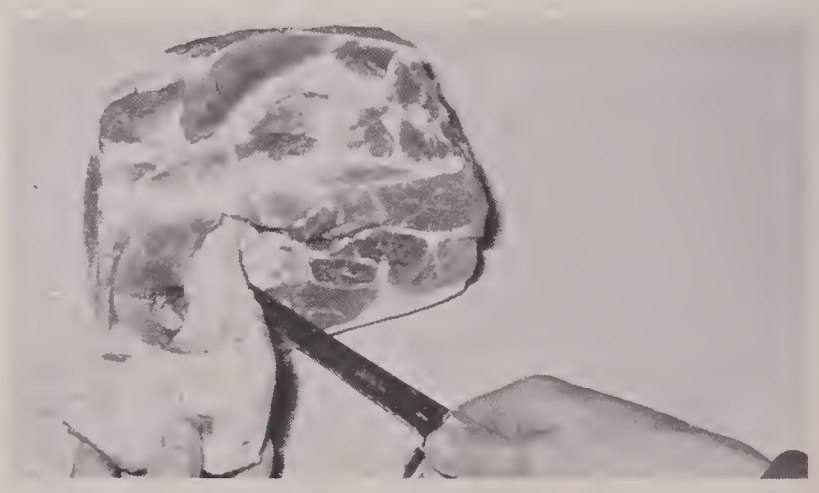
Unless the pork shoulder is boned it is extremely difficult to carve. The easy-to-follow method illustrated produces two boneless roasts that may be easily carved by machine or by hand.



1. After the hock is removed as illustrated on page 63, lift off collar (skin) and excess fat.

2. Separate boston butt from arm section of shoulder.

3. Cut around arm bone with tip of knife.



4. Tunnel out arm bone.

5. Remove blade bone.

6. Tie boneless butt roast.

Cutting Pork Shoulder Steaks—By Machine and by Hand

Pork shoulder steaks, cut according to the following method, and properly cooked, will be just as popular as pork loin chops. It will be easier to cut these steaks if the shoulders are not completely thawed.

1. After the hock is removed as illustrated on page 62 or 63, remove collar of skin and excess fat.

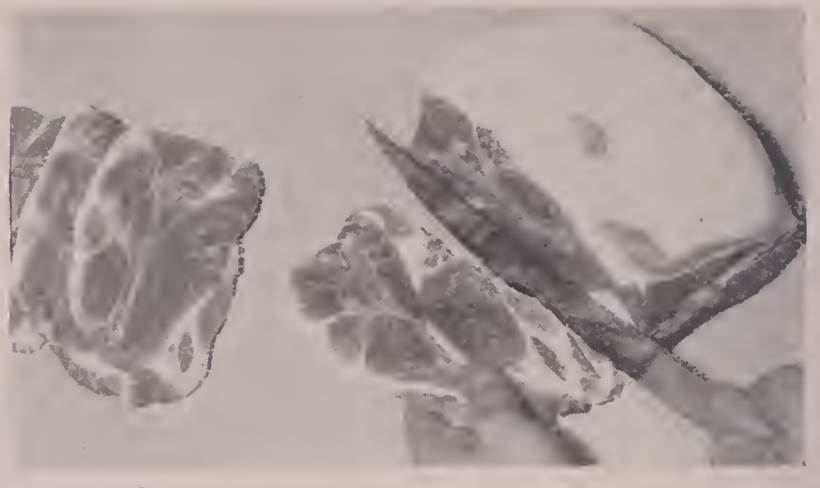
By Machine

By Hand

2. Cut arm bone steaks.

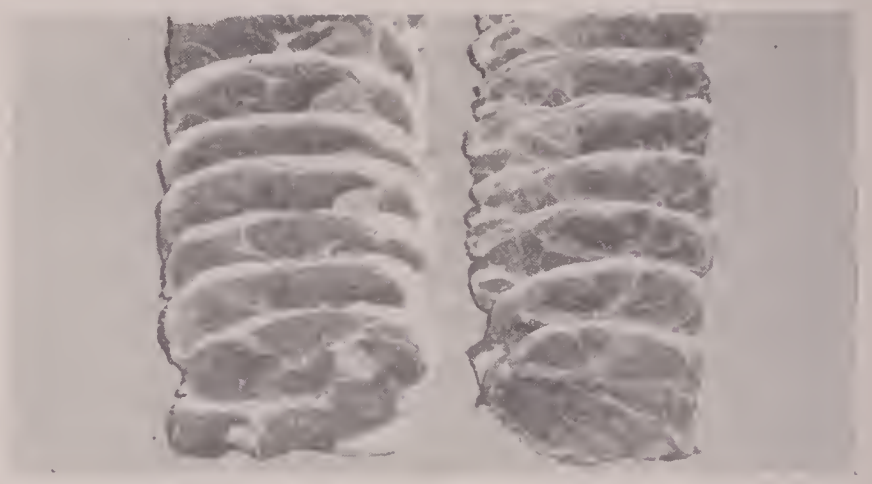
By Machine

By Hand



3. Cut blade bone steaks.

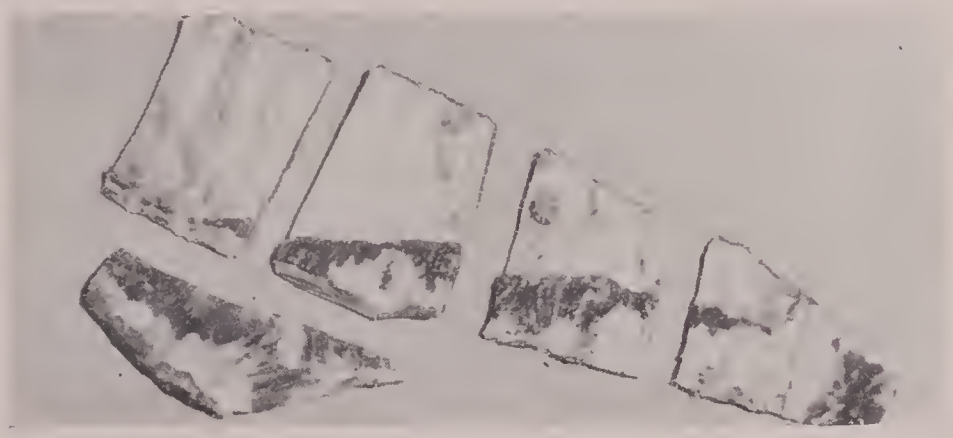
4. Pork shoulder steaks for braising and frying.



Cutting Spareribs—By Machine and by Hand

When cut by the method shown here, spareribs are easy to cook and serve because the pieces are of uniform size.

1. Remove breast bone by cutting through the cartilages at ends of rib bones.



2. Cut between ribs to get servings of equal size.

CHAPTER 4

LAMB

This chapter deals with methods of cutting lamb. These methods are based on carcass lamb but may apply to cutting lamb saddles or cuts.

If lamb is properly cut, cooked, and served, an appetizing bill-of-fare variety will be the result. Cutting methods vary according to the lamb dish to be served.

When roast lamb is to be served, carcasses should be divided into the major cuts and boned as illustrated. Boneless roasts need less oven space and yield more uniform servings than lamb roasts cooked with the bone in.

If the fat is closely trimmed when the meat is boned, braised lamb and lamb stews will be meaty and tasty when served.

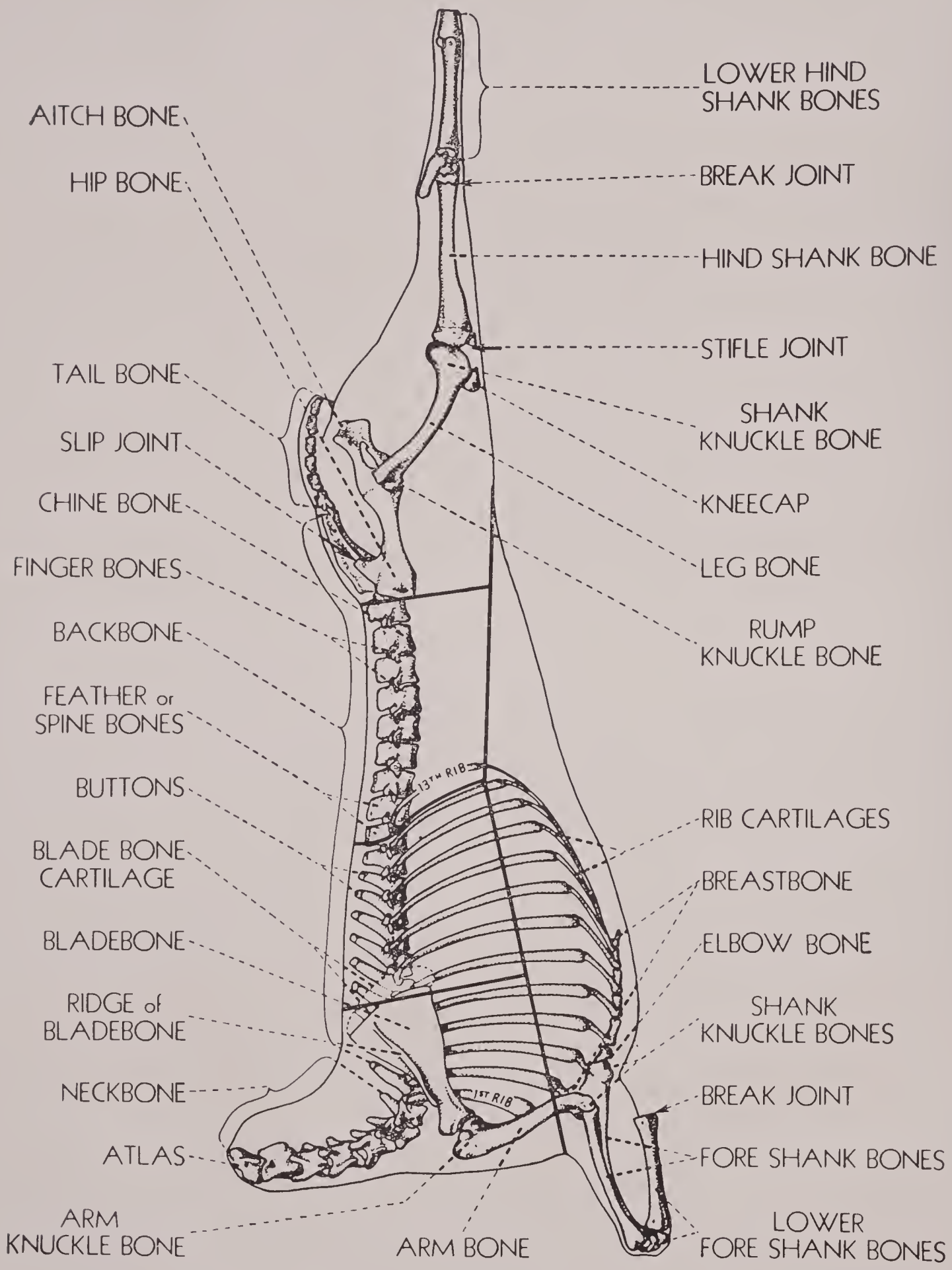
Chops and steaks are always popular. The method illustrated for cutting chops by machine or hand from carcass lamb is practical and easy to follow.

Cutting Methods Illustrated:

	Page
Lamb bone chart	68
Lamb chart—division of carcass	69
Dividing lamb into major cuts	70–71
Lamb for roasts and stews	71–82
Making boneless leg roast	71–74
Making boneless loin roast	74
Making boneless rack roast	75–76
Making boneless shoulder roast	76–78
Boning the breast	79
Boning the shank	80
Boning the neck	81
Boneless lamb for stewing or braising	82
Lamb bones for broth	82
Making chops from lamb	83–84
Cutting lamb chops—by machine and by hand	85–93
Questions and answers about lamb	140–141

LAMB CHART

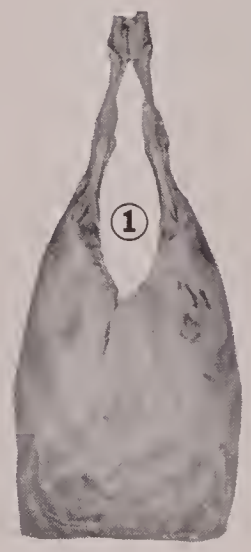
LOCATION, STRUCTURE, AND NAMES OF BONES



Division of Carcass for Roasts and Stews

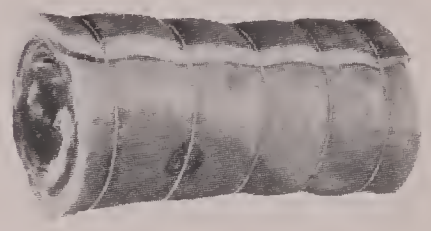
BONELESS LAMB
LEGS

100 pounds of lamb legs will provide 69 pounds of boneless roasts.



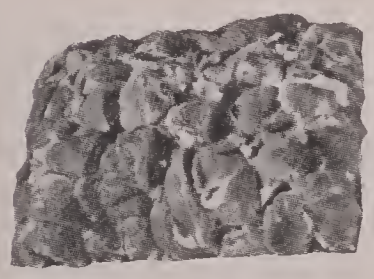
BONELESS LAMB
LOIN

100 pounds of untrimmed loins will provide 54 pounds of boneless roasts.



BONELESS LAMB
RACK

100 pounds of lamb racks will provide 60 pounds of boneless roasts.



BONELESS LEAN
MEAT

100 pounds of breasts, shanks, and necks will provide 38 pounds of boneless lean meat.

BONELESS LAMB
SHOULDERS

100 pounds of square cut shoulders will provide 69 pounds of boneless roasts or stew.

BONES FOR SOUP

100 pounds of carcass lamb will provide 11.5 pounds of bones for soup.

TRIANGLE FOR STEW

④,⑤,⑥,⑦

100 pounds of lamb triangles will provide 54.5 pounds of boneless meat for stew.

LONG SADDLE FOR ROASTS

①,②,③

100 pounds of long lamb saddles will provide 63.5 pounds of boneless roasts.

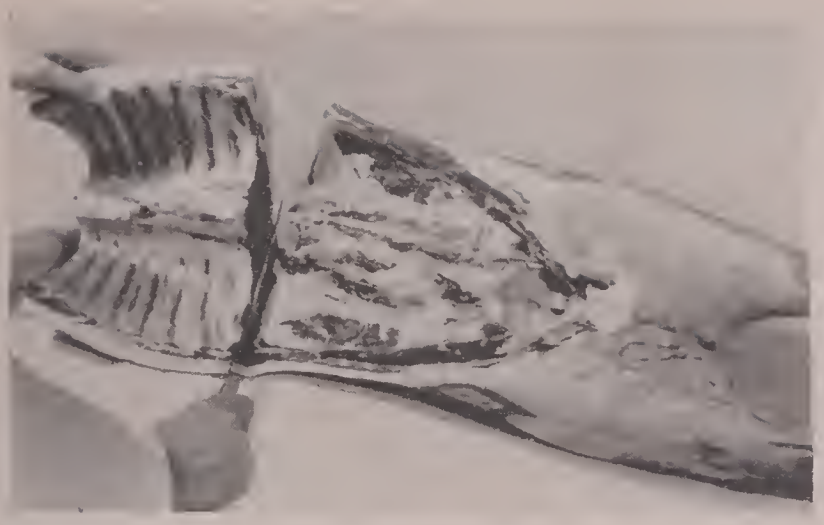
Dividing Lamb into Major Cuts

1. Remove neck at point where it joins shoulder.

2. Remove shank, breast and flank in one piece as follows: (a) Cut from cod to 13th rib to free flank from loin; (b) Saw through shank bone just above elbow; (c) Saw through all ribs to point made by flank cut; (d) Follow same steps on opposite side.

3. Remove kidney knobs and excess loin fat.

4. Separate shoulders from long saddle by cutting between fifth and sixth ribs.



5. Remove rack by cutting back of 13th rib.

6. Separate loin from legs by cutting just in front of the hip bones.

Section 1

Lamb for Roasts and Stews

Boneless roasts of uniform size may be made from the legs, loin, rack, and shoulders. The breasts, shanks, and necks are most satisfactory for stewing and braising when boned as illustrated.

Making Boneless Leg Roast

1. Cut through meat and cartilage which connects aitch bones.

2. Cut under tenderloin and through slip joint to separate legs.

3. Cut under tenderloin and through slip joint to remove tail bone from leg.

4. Trim excess fat from leg.

5. Unjoint and remove pelvic (aitch and hip) bone.

6. With tip of knife cut along each side of shank bone, then cut across break joint.

7. Open break joint by forcing over edge of block, then pull meat from shank bone.

8. Remove lower shank bone by cutting across thin end of shank meat.

9. Split inside leg muscle so leg and shank bones can be removed.

10. Pull fell from shank meat.

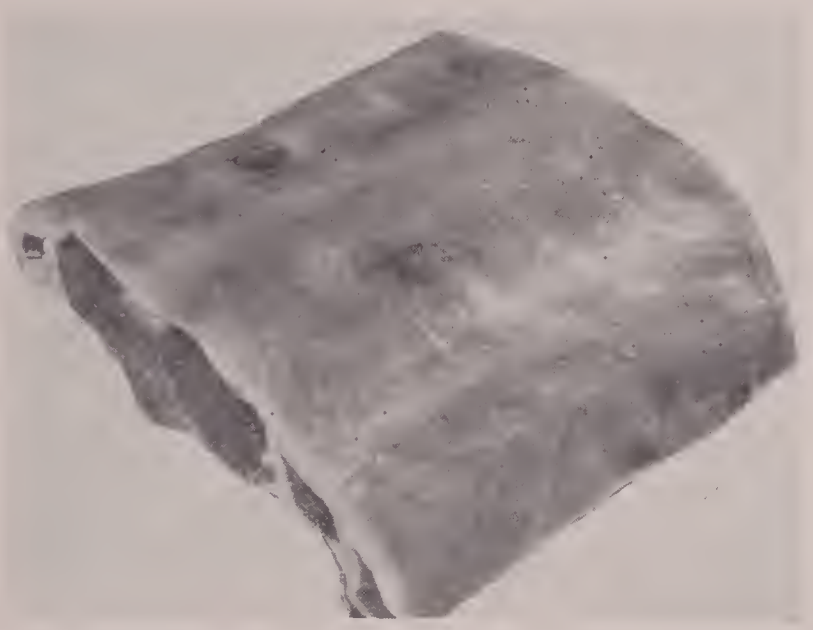
11. Cut off shank meat.

12. Place shank meat lengthwise in pocket left by removal of pelvic bone.

13. Shape the meat into a roll and tie.

14. Boneless roasts from two legs.

Making Boneless Loin Roast



1. Lamb loin.

2. With inside of loin up, loosen meat from backbone.

3. Remove backbone.

4. Roll and tie for boneless loin roast.

Making Boneless Rack Roast

1. Lamb rack.

2. Run knife along feather bones and cut close along ribs to remove rack meat.

3. Turn rack around for easy removal of the remaining rack meat.

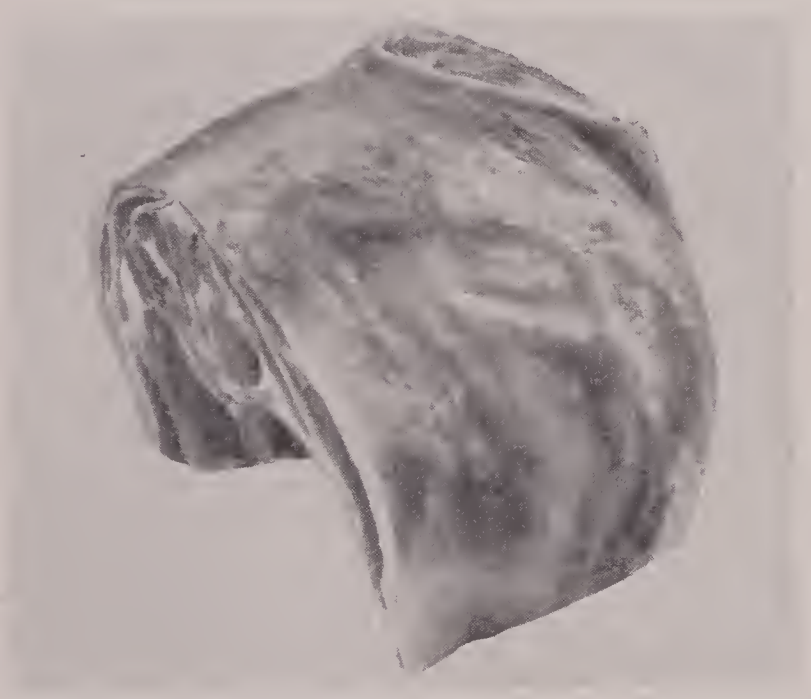
4. Pull backstrap from each half of rack meat.

5. Reverse ends to make a uniform roll.

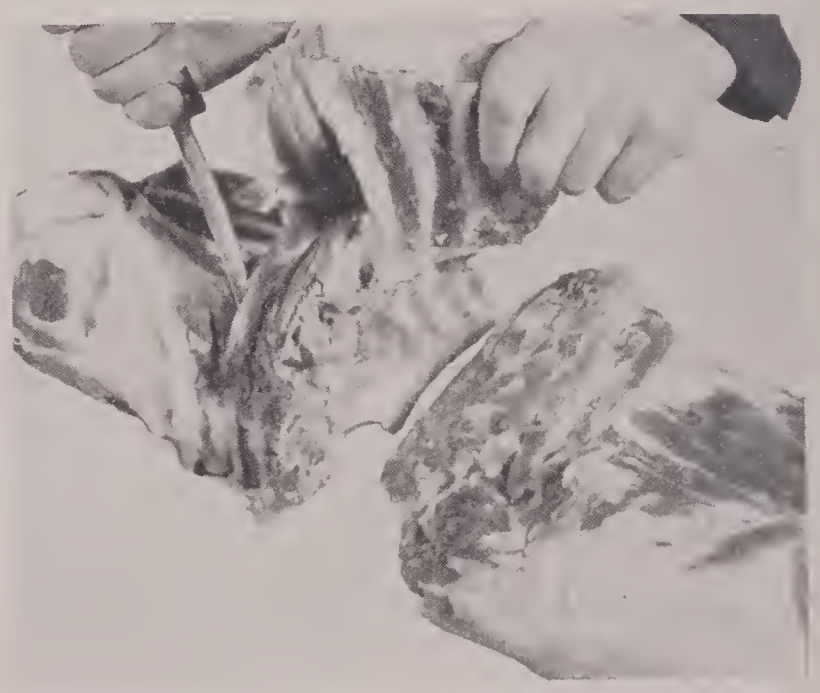
6. Roll and tie.

7. Boneless rack roast.

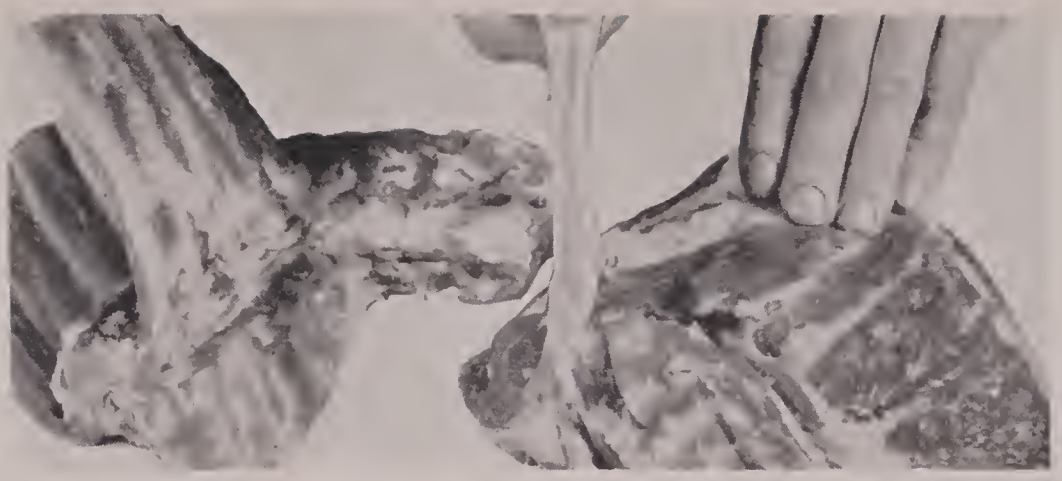
Making Boneless Shoulder Roast



1. Lamb shoulders.



2. Remove both shoulders from unsplit ribs and backbone.



3. Pull backstrap from shoulders.

4. Open shoulder from two sides only, by cutting over blade and arm bones.

5. As meat is cut from blade and arm bones, fold it back to completely expose those bones, then run point of knife along edges of these bones.

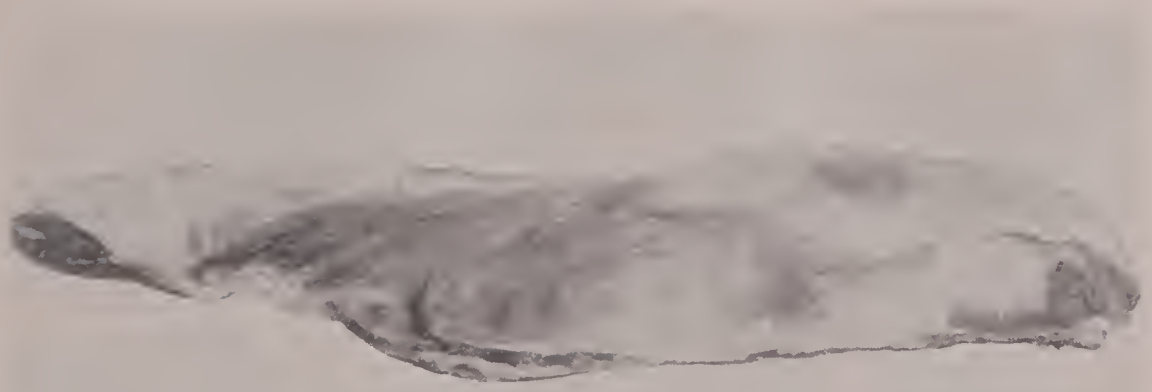
6. Unjoint and remove arm bone, then scrape end of ridge bone and pull it from the meat.

7. The boneless shoulder may be used for stewing or braising, or folded into shape for a roast.

8. Tying boneless shoulder roast.

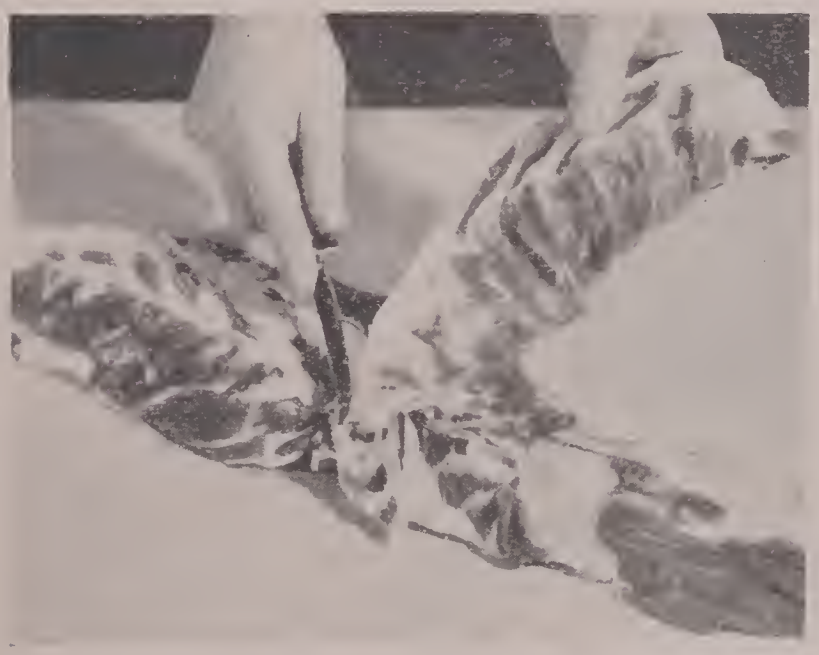
9. Boneless roasts from two shoulders.

Boning the Breast

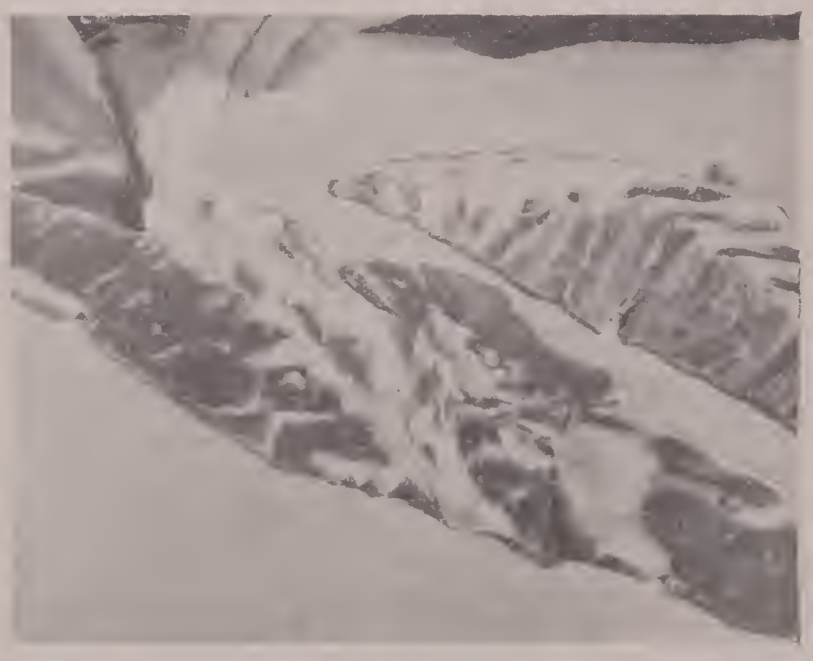


1. Lamb breast.

2. Cut skirt back from rib cartilages.



3. Cut under breast bone and close to ribs to lift bones from breast.



4. Trim all excess fat and membranes from the boneless breast before cutting for stew.

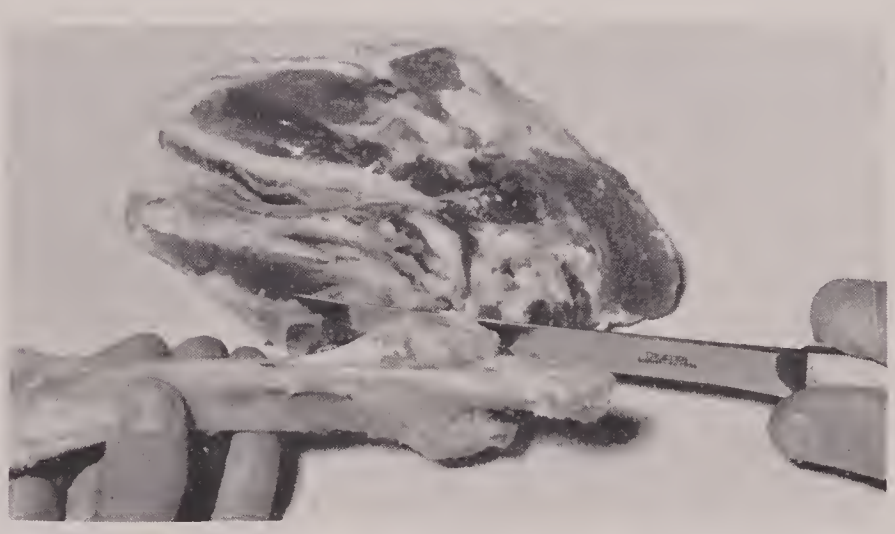
Boning the Shank

1. Lamb shank.

2. On inside of shank, score both sides of shank bone with point of knife and mark across break joint. Open joint by breaking lower shank over edge of block or table.

3. Pull meat from shank bone.

4. Remove lower shank bone by cutting across thin end of shank meat.



5. Remove shank bone and trim meat for stewing or braising.

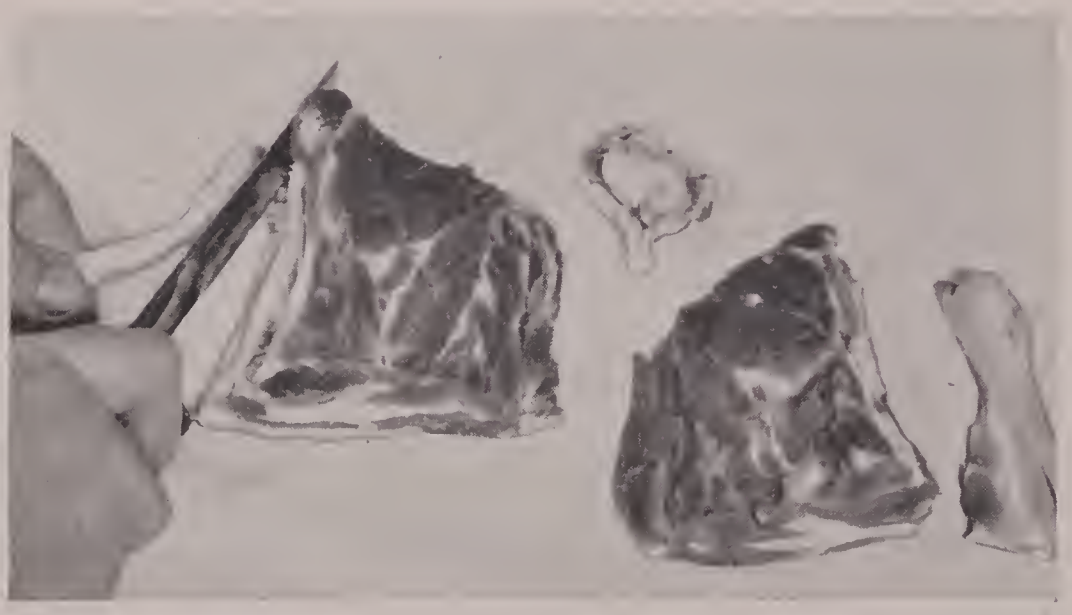
Boning the Neck

1. Lamb neck.

2. With throat side of neck down, cut meat from bone on one side.

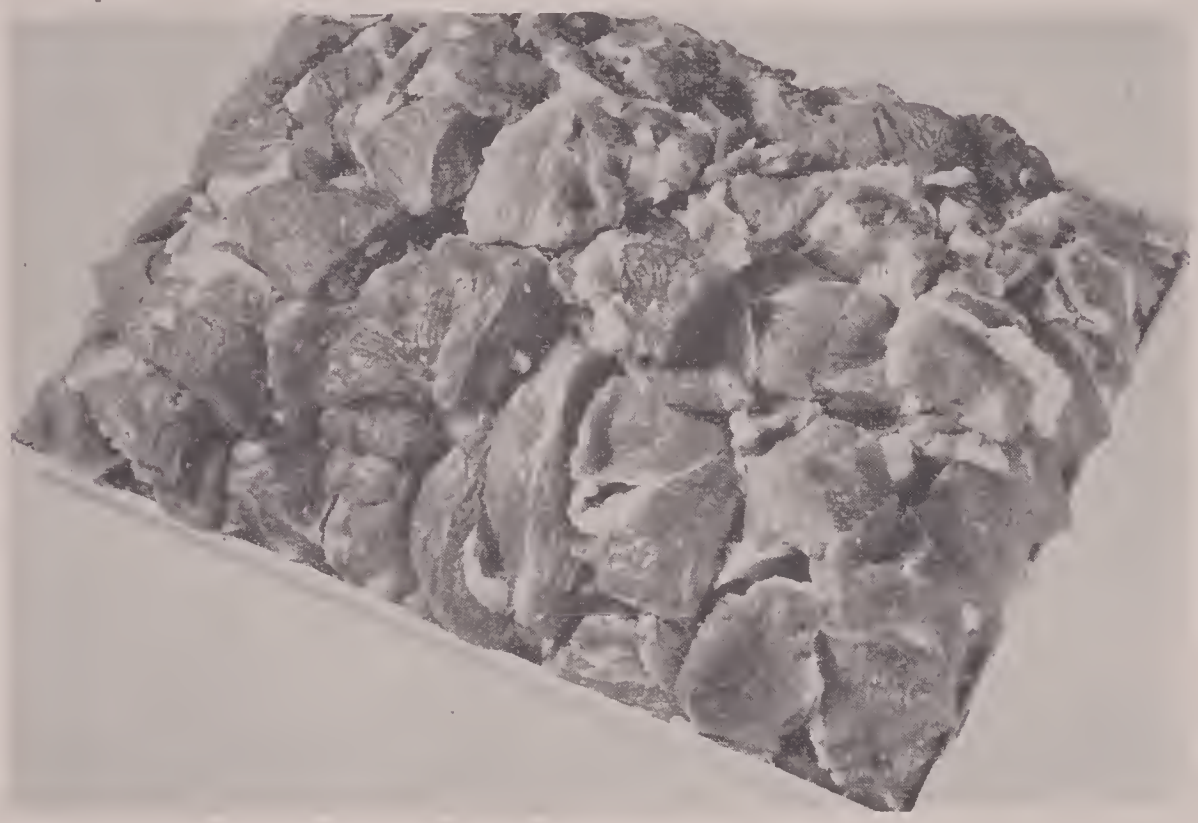
3. Cut remainder of meat from neck bone.

4. After removing backstrap and excess fat, cut boneless meat for stewing or braising.



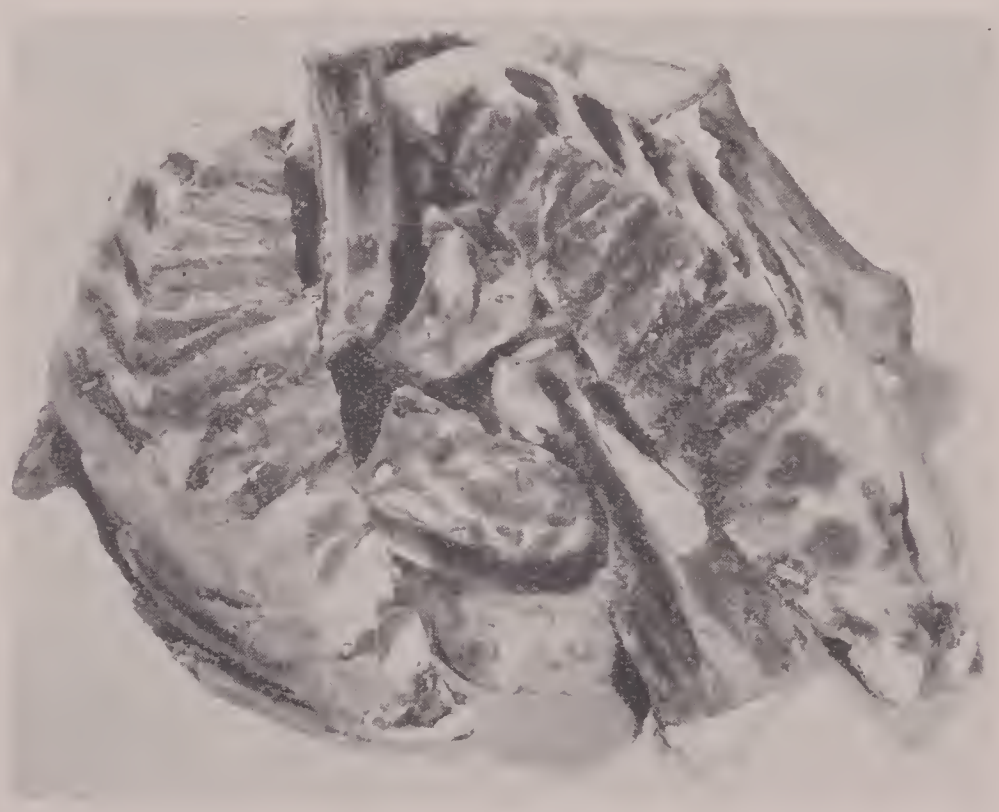
Boneless Lamb for Stewing or Braising

These boneless, lean pieces are from the shoulders, breasts, shanks, and neck. Bone splinters have been eliminated and excess fat has been removed.



Lamb Bones for Broth

Excess fat and lower shank bones should not be included. Bones may be held for a short time under refrigeration, but should be utilized as soon as possible after boning.



Making Chops From Lamb

Information on the following pages is of practical value both for the large messes equipped with electric meat cutters and for small messes where cutting is done by hand.

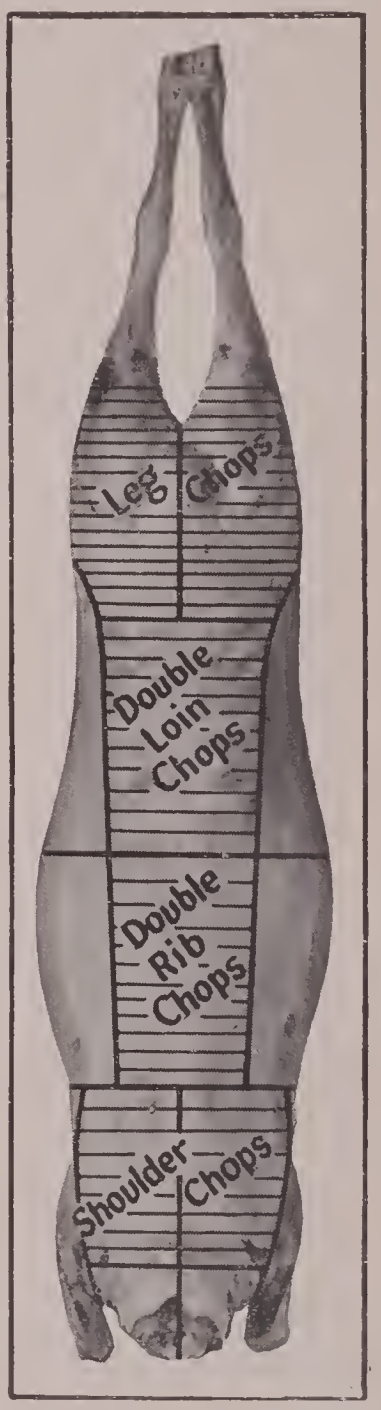
How to convert the shoulders, rack, loin, and legs of lamb into the largest number of uniform-sized chops and how to use the remaining carcass sections for lamburgers, lamb patties, and lamb salisbury steaks is shown in cutting procedure illustrations and instructions on succeeding pages.

Using Carcass Lamb for Chops

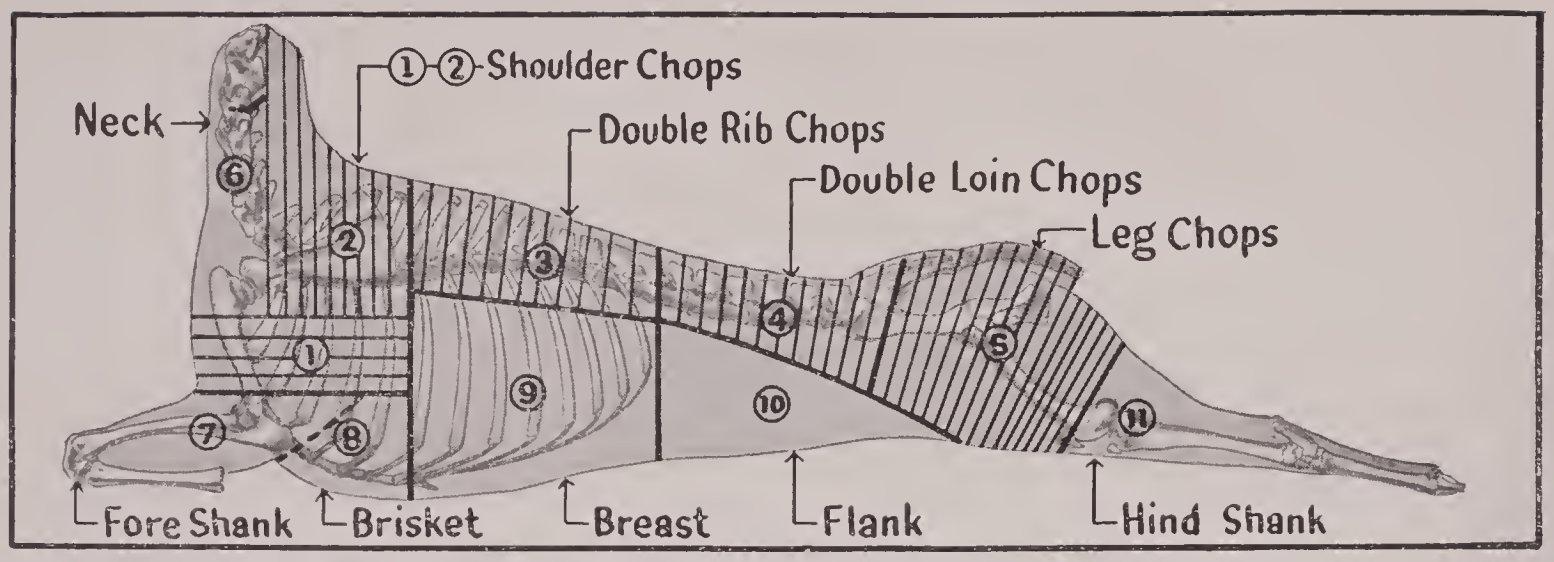
Average issue of carcass lamb for chops is 60 pounds for 100 men. When cut into chops, the carcass yields about 58 percent chops, 20 percent boneless meat for lamburgers, stew, patties, etc., and 22 percent bones, fat, and unusable trimmings.

A lamb weighing 60 pounds will provide about 75 chops averaging 7.5 ounces each. Sixty pounds of carcass lamb will not yield 100 chops unless cut exceedingly thin. However, a 60-pound issue will easily serve 100 men if the boneless meat from the neck, shanks, briskets, breasts, and flanks is made into lamburgers, lamb patties, or lamb salisbury steaks for cooking and serving with the chops.

When serving lamb chops, draw enough carcass lamb for two meals. The break-out for 100 men should be 110 pounds of carcass lamb. This will furnish 100 individual chops for dinner, plus enough meat for lamb loaf at supper. In this way the most desirable cuts will be used for chops, the rest boned, ground, and used for lamb loaf.

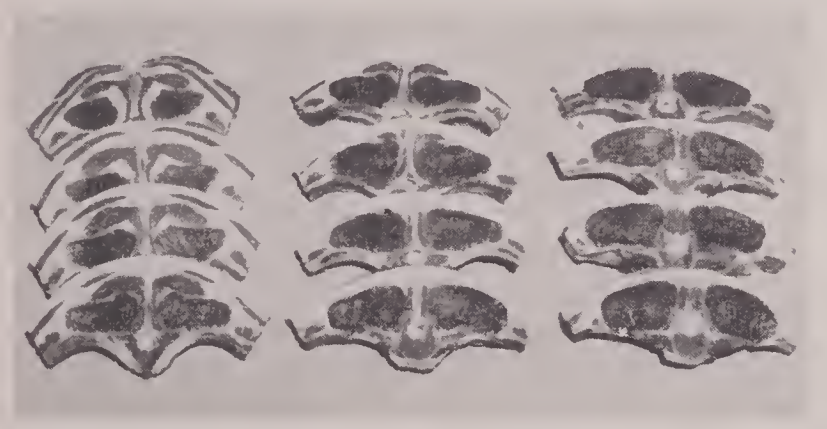


Lamb Chops and Lamburgers

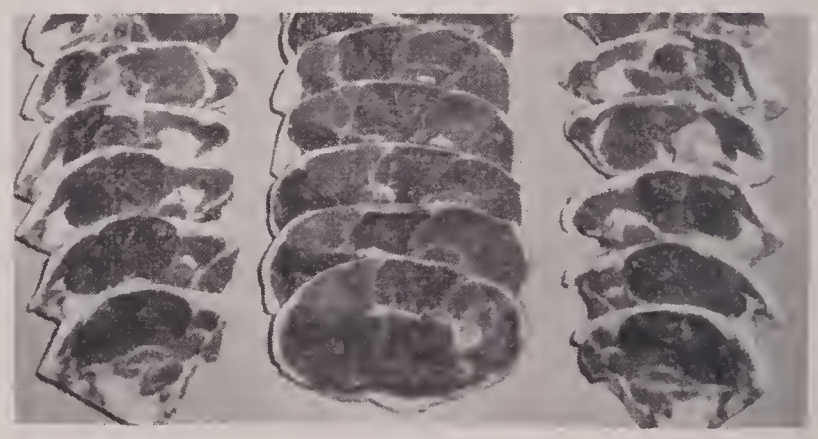


(1), (2) Shoulder chops (20–26 chops).

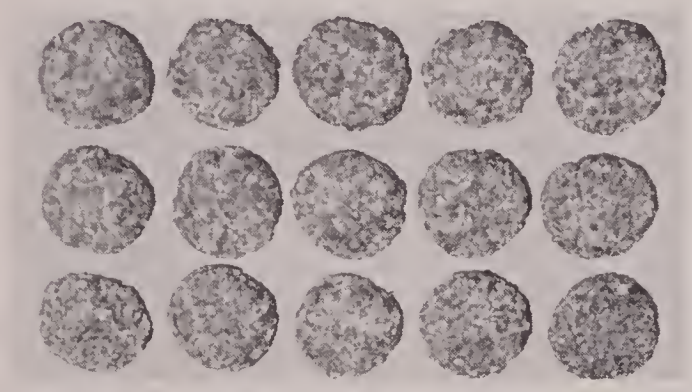
(4) Double loin chops (8–12 chops).



(3) Double rib chops (8–12 chops).



(5) Leg chops (26–32 chops).



(6) to (11) Lamburgers (50–60 lamburgers).

(6) to (11) The neck, shanks, briskets, breasts, and flanks cannot be cut into chops but when it is necessary to serve 100 men from a single issue of 60 pounds of carcass lamb, these sections can be boned, ground, and made into 50 or 60 lamburgers which can be cooked and served with the 70 to 75 chops obtained from the shoulders, rack, loin, and legs. Each serving should consist of one chop or two lamburgers.

Section 2

Cutting Lamb Chops—By Machine and by Hand

Machine and hand cutting.—The following instructions cover both machine and hand cutting. Pictures at the left show step-by-step machine cutting of carcass lamb into chops. Illustrations at the right show the same cuts, by hand, with knife or saw.

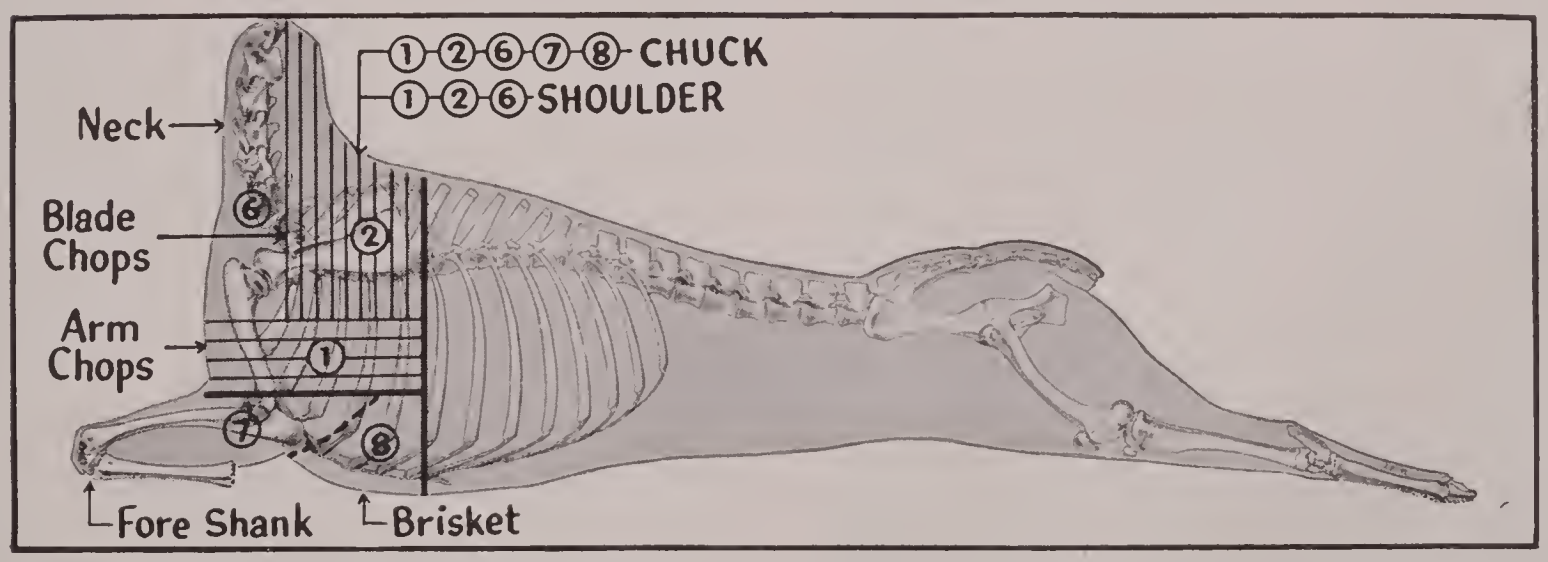
Time-saving method provides uniform size chops.—A lamb carcass can be cut into chops in a very few minutes by an electric meat cutter. Since the rack and loin are not split as usual in commercial cutting, this time-saving method provides chops from the shoulders, rack, loin, and legs which are uniform in size—an important matter in mess hall service.

Hand cutting, of course, takes longer, but tests have shown that a carcass can be cut into chops by hand as quickly as it can be boned and rolled for roasts.

No cleaver used in hand cutting.—In cutting chops by hand, note that no cleaver is used. This eliminates bone splinters and the chops are more uniform in thickness and more attractive in appearance.

An electric meat cutter automatically eliminates bone splinters. Many small messes do not have such a machine, but where a few lambs usually furnish all the chops needed, there is normally plenty of time to cut the chops with a knife and saw.

Cutting Shoulder Chops



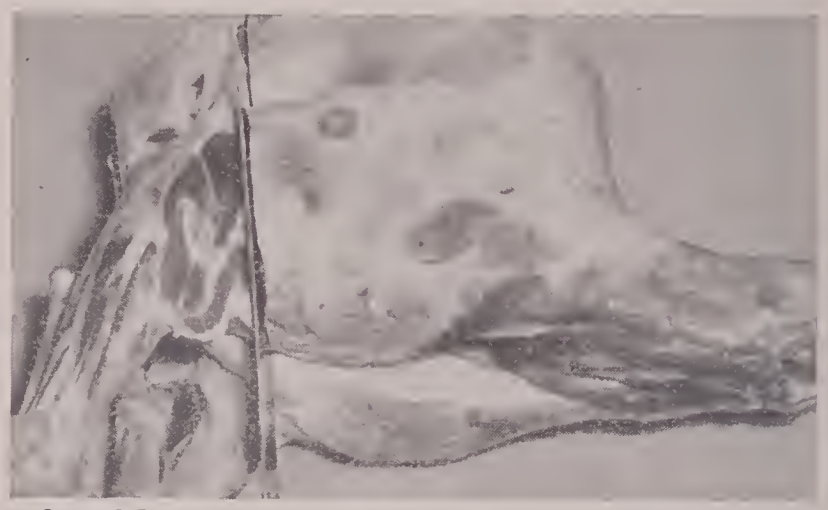
Remove chuck by cutting between fifth and sixth ribs. Cut shoulder into arm and blade chops as indicated in diagram above.

Cutting Shoulder Chops

By Machine

By Hand

1. Remove chuck by cutting between fifth and sixth ribs.



2. Remove shanks and briskets from unsplit shoulders by cutting about one inch above elbow joints.

3. Split shoulders and neck.

By Machine

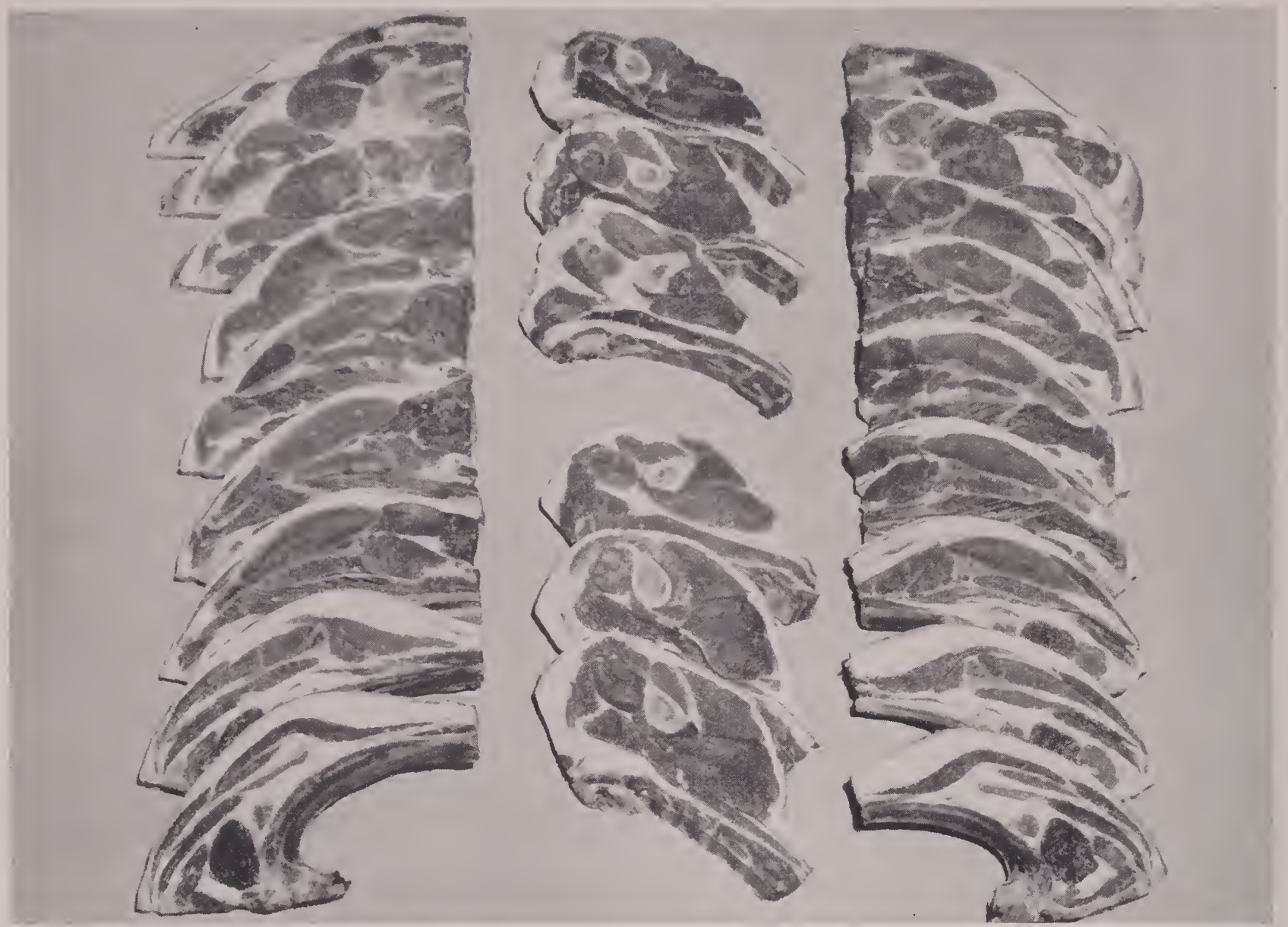
4. Remove three chops from arm side of shoulder. (Four arm chops may be cut from large shoulder.)

By Hand

4a. Cut chops, leaving them attached to ribs.

4b. Cut along ribs to remove and separate chops.

5. Cut blade chops from shoulder until neck is reached. From 7 to 9 blade chops may be cut from average shoulder.

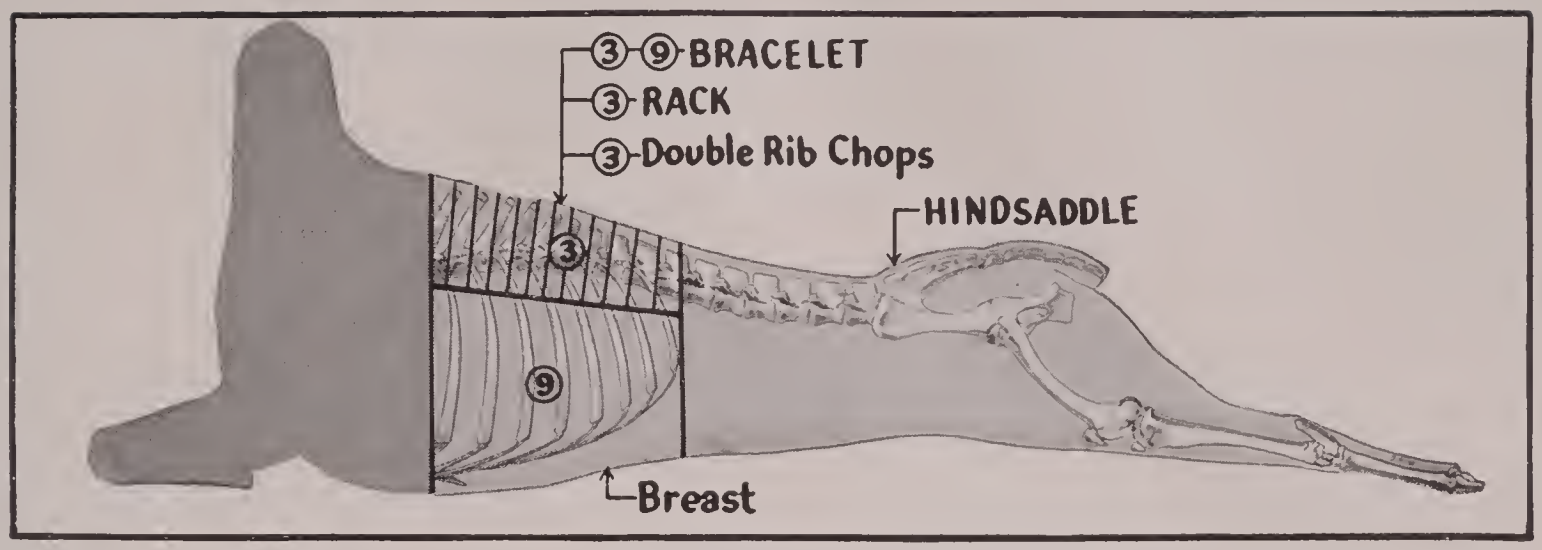


From 20 to 26 chops (arm and blade) can be cut from average pair of lamb shoulders. Chops should weigh 6 to 8 ounces each.

Removing Kidney Knobs and Loin Fat

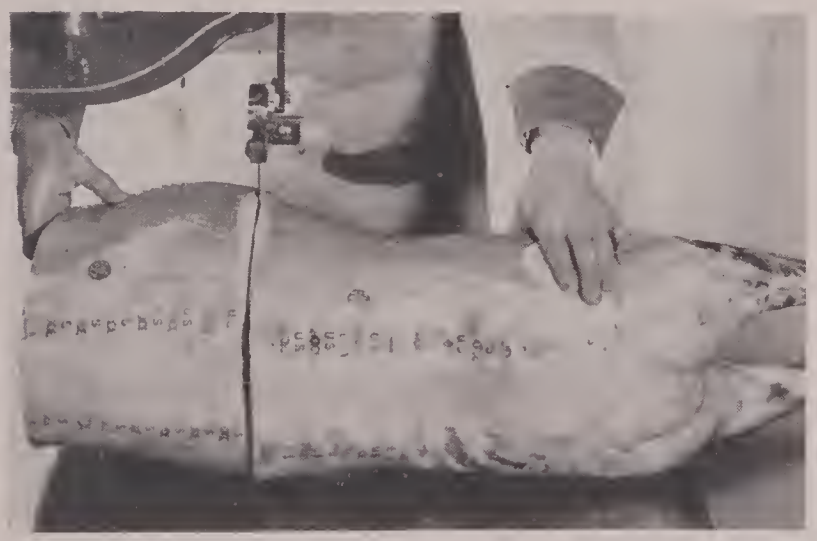
Pull out kidney knobs and excess loin fat.

Cutting Double Rib Chops



Separate bracelet from hind saddle by cutting back of 13th rib. Cut rack into chops, as indicated in diagram above.

By Machine



By Hand

1. Remove bracelet from hindsaddle by cutting back of 13th rib.

2. Cut across ribs about one inch from each rib "eye" to separate breasts from rack.

By Machine

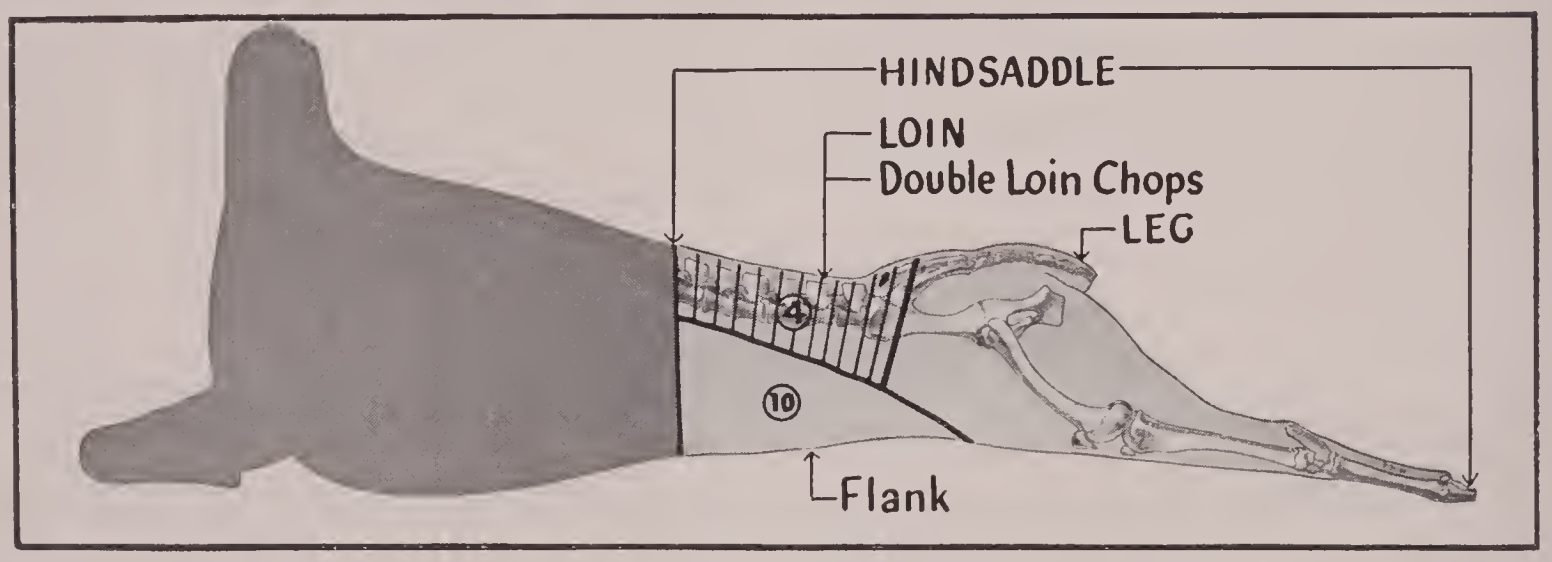
3. Cut double rib chops from unsplit rack. and leg chops.

Rack will furnish 8 to 12 chops weighing 6 to 8 ounces each.

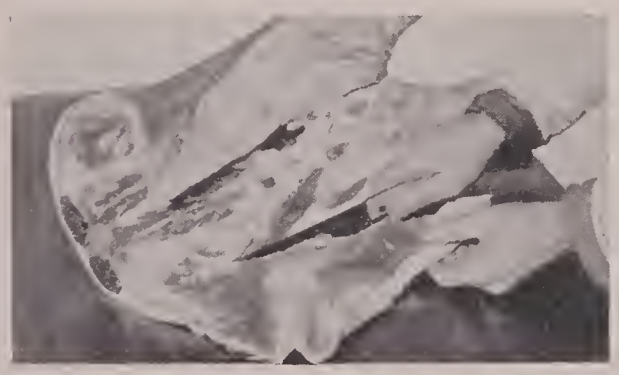
By Hand

They should be about same size as shoulder

Cutting Double Loin Chops



Remove flanks from hindsaddle and cut loin into chops, as indicated in diagram.



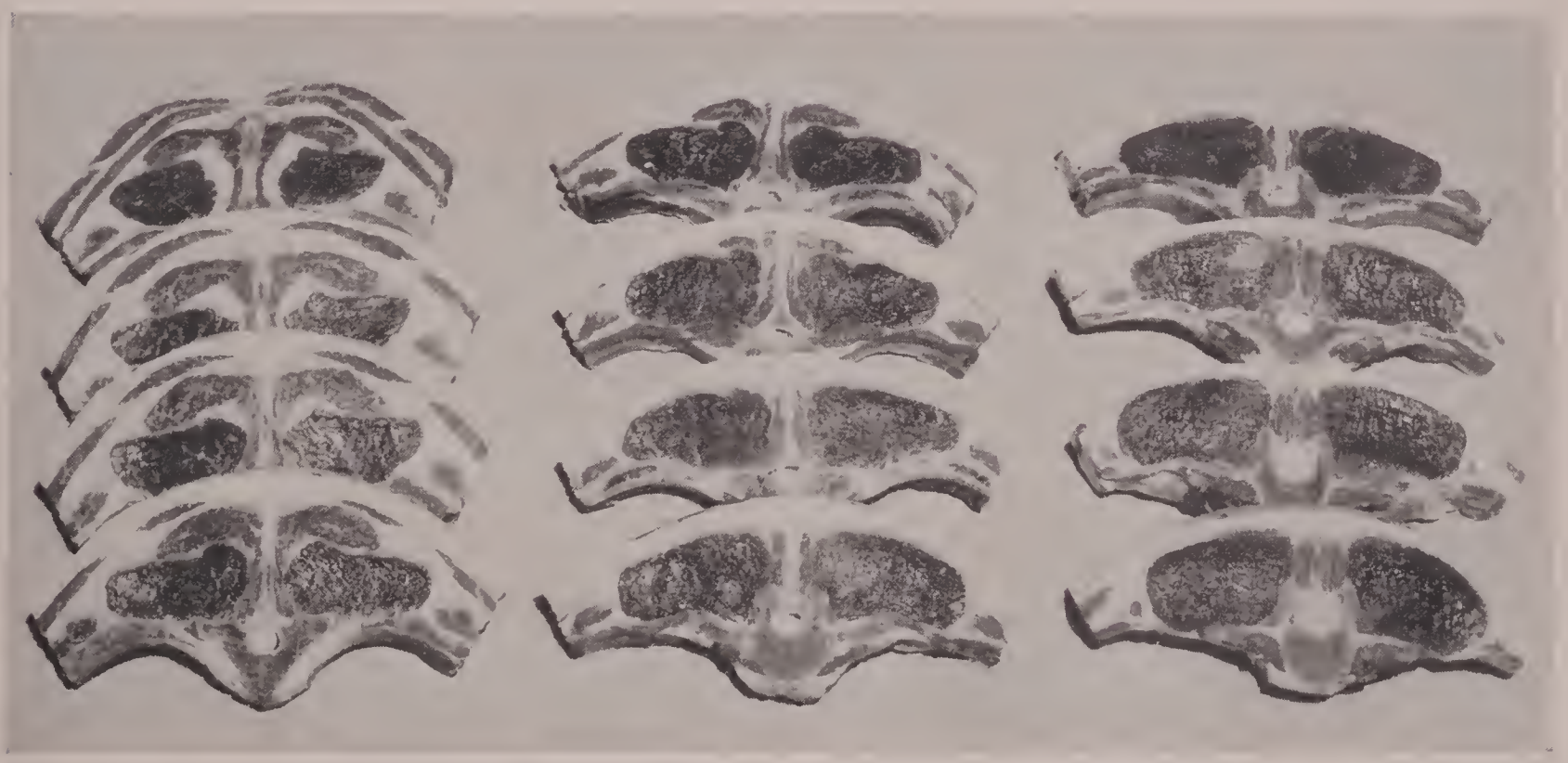
1. Remove flanks from hindsaddle, cutting about one inch from each loin "eye."

By Machine

2. Cut double loin chops from unsplit loin.

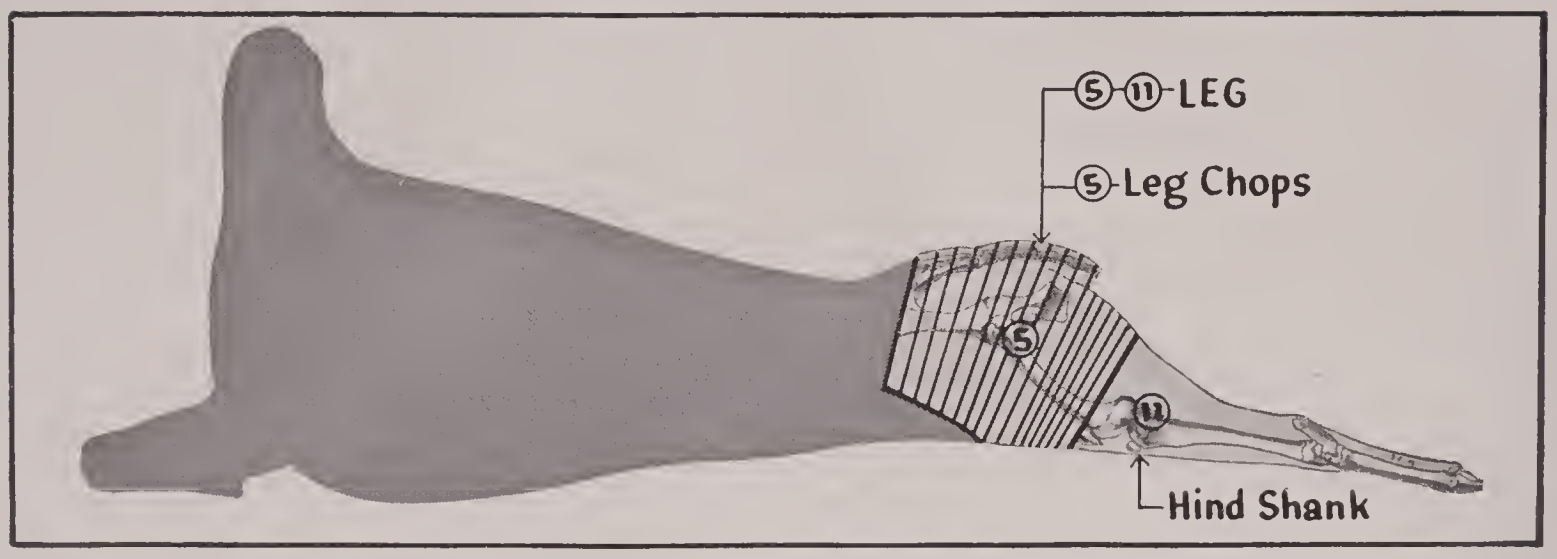
By Hand

Continue cutting until two chops containing sections of hip bones have been removed.



Loin will furnish 8 to 12 chops weighing 6 to 8 ounces each.

Cutting Leg Chops



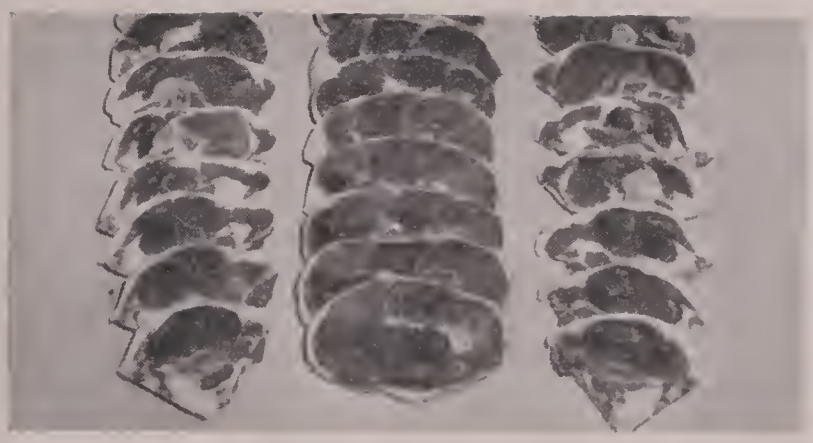
After splitting legs, cut into chops, as indicated in diagram above.

By Machine

By Hand

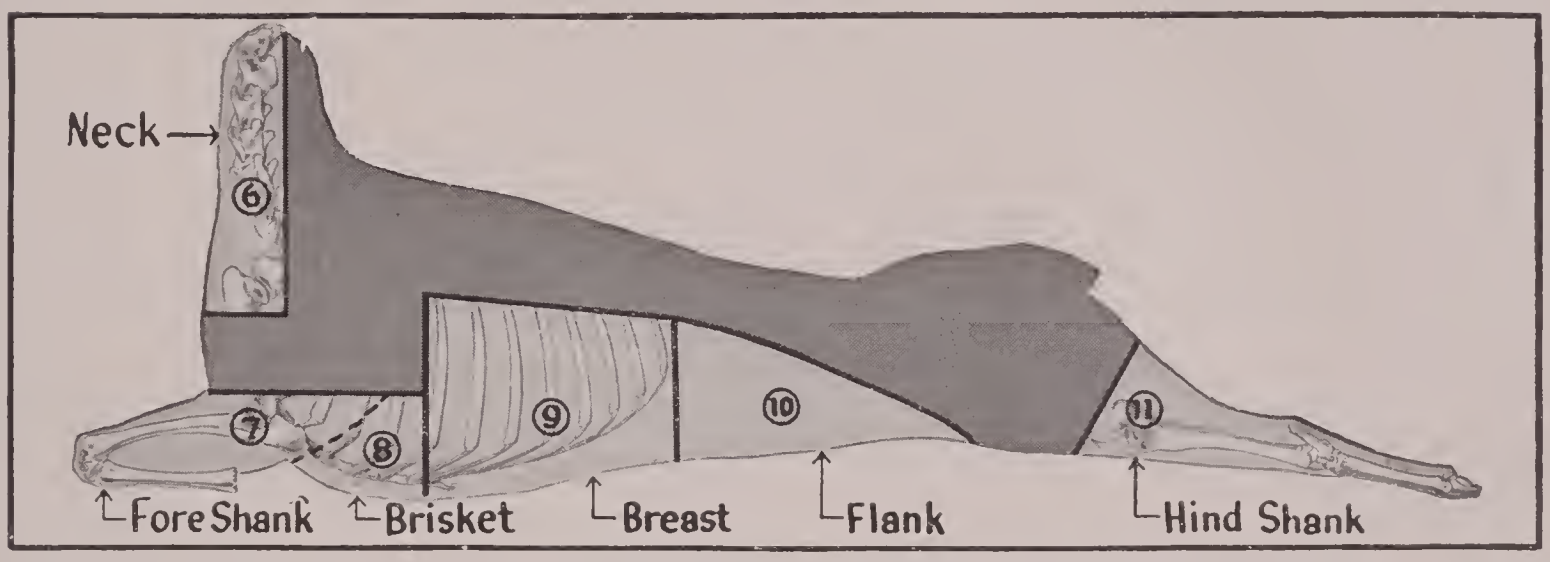
1. Split legs.

2. Cut chops straight across leg until shank is reached. Cut center chops thinner than others to equalize size of servings.

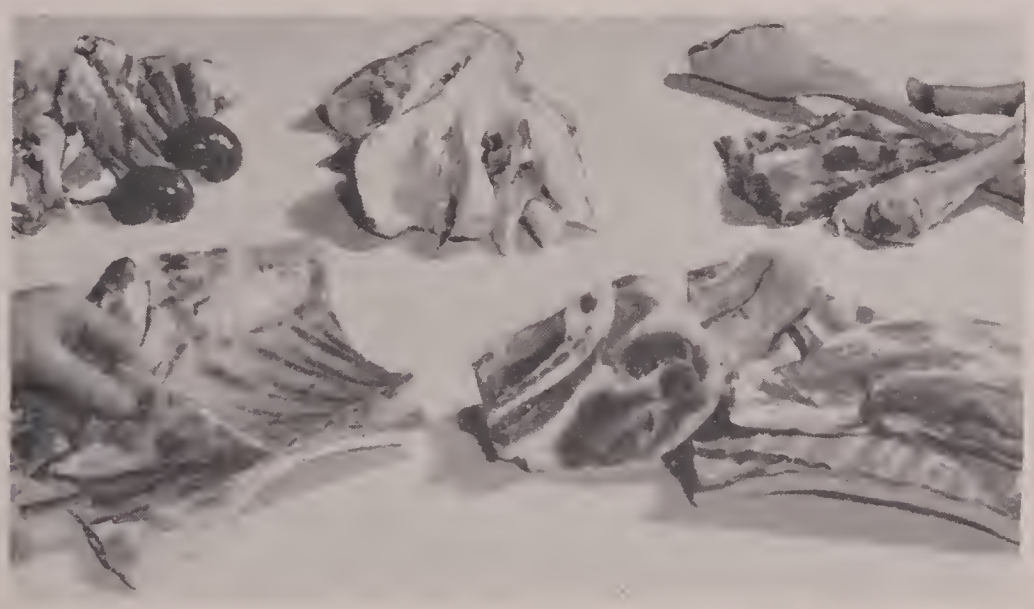


From 26 to 32 chops weighing 6 to 8 ounces each can be cut from average pair of lamb legs.

Using Neck, Shanks, and Breasts



Light sections of diagram show portions of carcass which should be boned for lamburgers, lamb salisbury steaks, lamb patties, etc.



1. Bone out neck, shanks, briskets, breasts, and flanks. Use lean meat and kidneys for stew, loaves, patties, etc. Render and use fat with other galley fats for cooking purposes. Use bones in making stock for soups, gravies, etc.

2. An issue of 60 pounds of carcass lamb will provide enough ground lamb from the neck, shanks, briskets, breasts, and flanks to make from 50 to 60 patties or lamburgers weighing 3½ to 4 ounces each.

CHAPTER 5

VEAL

Veal procured for Navy messes is delivered in the form of carcasses, sides, or saddles. Carcasses weigh betwen 75 and 250 pounds. Sides and saddles are of proportionate weights. Weight of veal will determine the preferred cutting method.

Extremely light veal carcasses may be cut best by following the same method used for cutting carcass lamb. (See pages 71 to 82.)

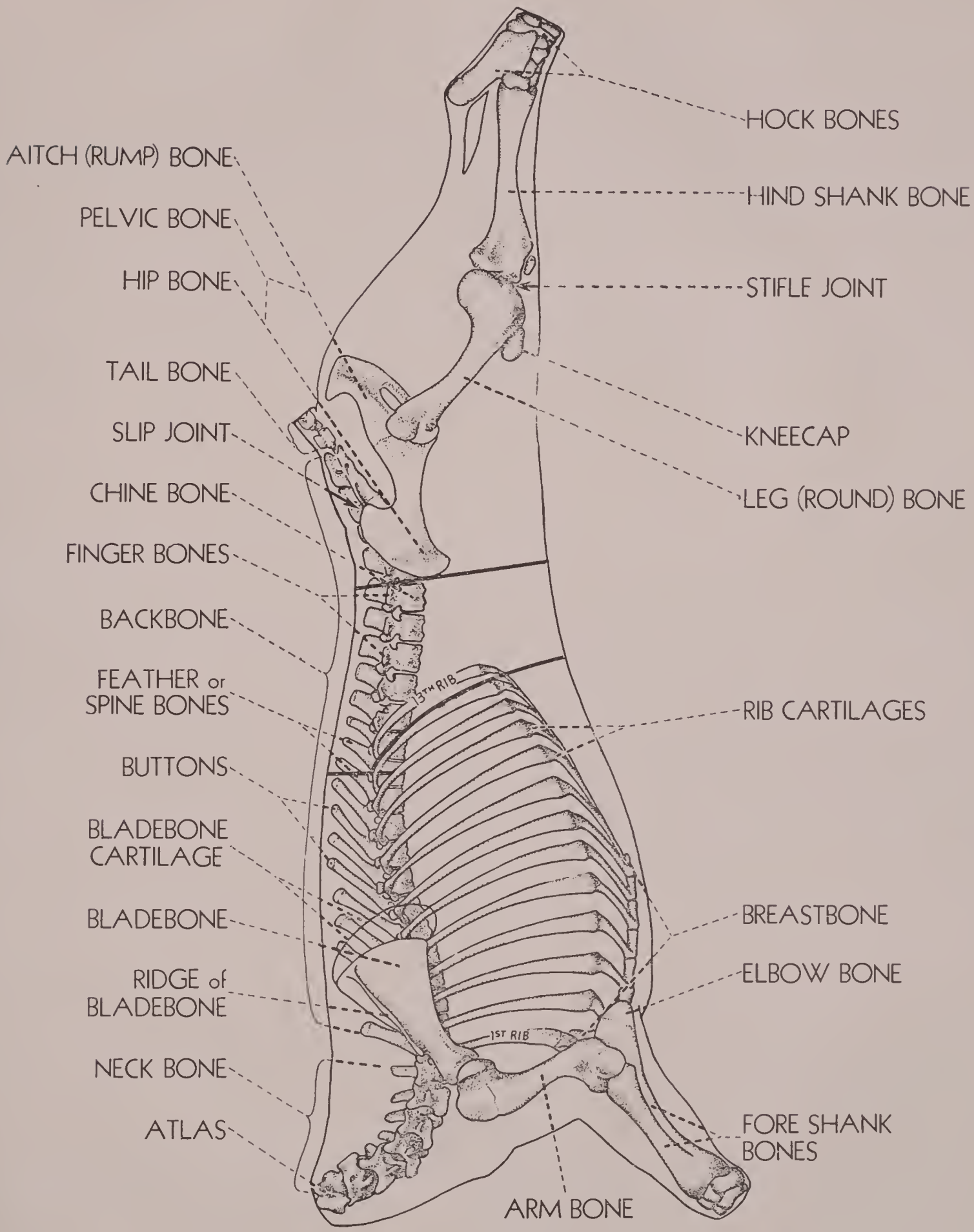
Cutting method adaptable.—Methods of cutting veal for roasts and stews or chops and cutlets, as illustrated in this chapter, are based on cutting veal sides. After center splitting carcasses or saddles, cut by the following illustrated methods.

Cutting Method Illustrated:

	Page
Veal bone chart	95
Boning veal for roasts or cutlets and stews	96
Cutting the veal forequarter	97–103
Cutting the veal hindquarter	104–110
Cutting veal cutlets by machine	110
Veal cutlets from the forequarter	110–112
Veal cutlets from the hindquarter	113–114
Using breast, flank, shanks, and neck	115
Cutting veal cutlets by hand	115
Veal cutlets from the forequarter	115–116
Veal cutlets from the hindquarter	117
Questions and answers about veal	143–144

VEAL CHART

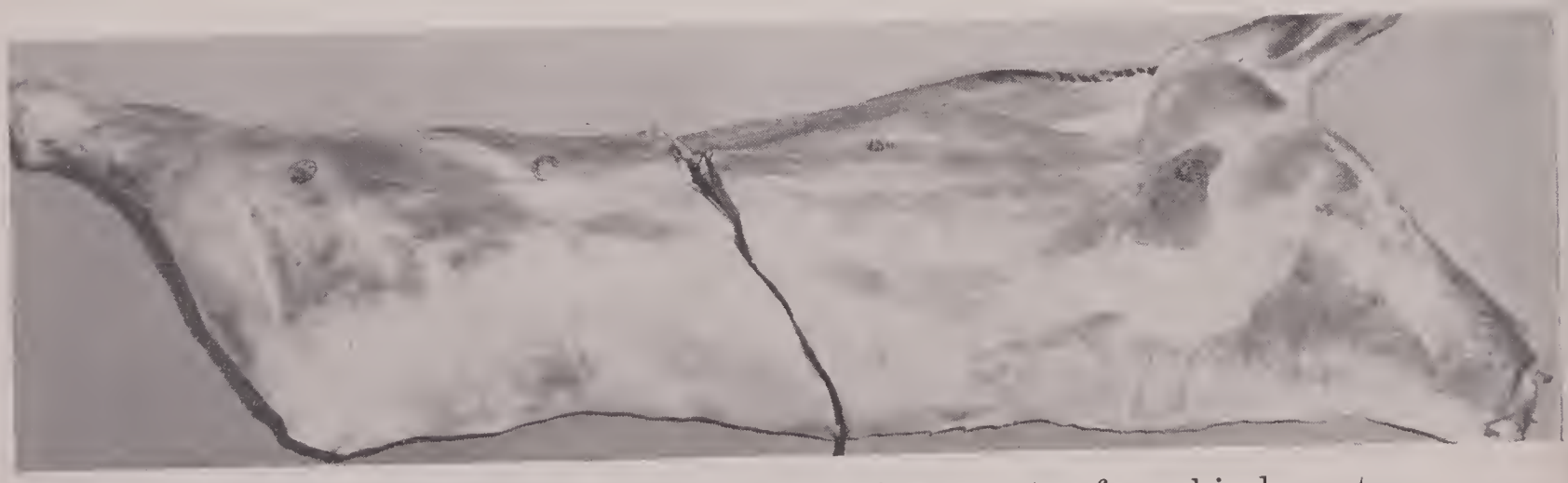
LOCATION, STRUCTURE, AND NAMES OF BONES



Section 1

Boning Veal for Roasts or Cutlets and Stews

Boneless cuts from the forequarter and hindquarter.



Cut behind thirteenth rib to separate forequarter from hindquarter.

Cutting the Veal Forequarter

Removing the Outside Shoulder

1. Cut through outer layer of meat from (a) to (b) and (c) to (d), with tip of knife.

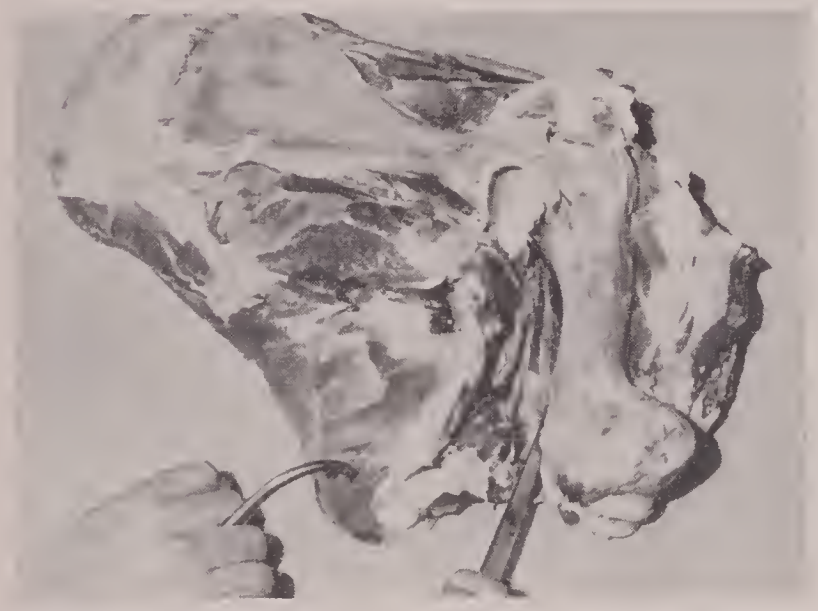
2. Cut through natural seam to remove outside shoulder. (Includes shank, arm, and blade bones.)

Removing and Boning the Shank

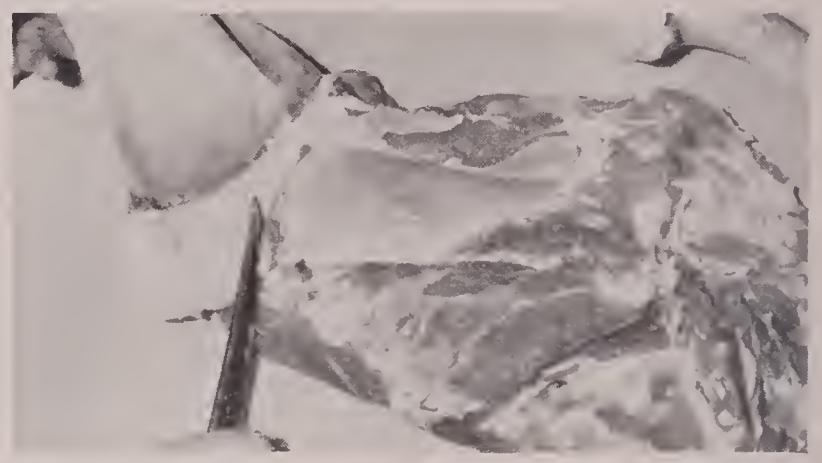
1. Cut through elbow joint to separate shank from arm section.

2. Cut shank meat from bone and use for stewing or grinding.

Boning the Outside Shoulder



1. Loosen thin meat to expose arm and blade bones and cut with point of knife along both sides of these bones.

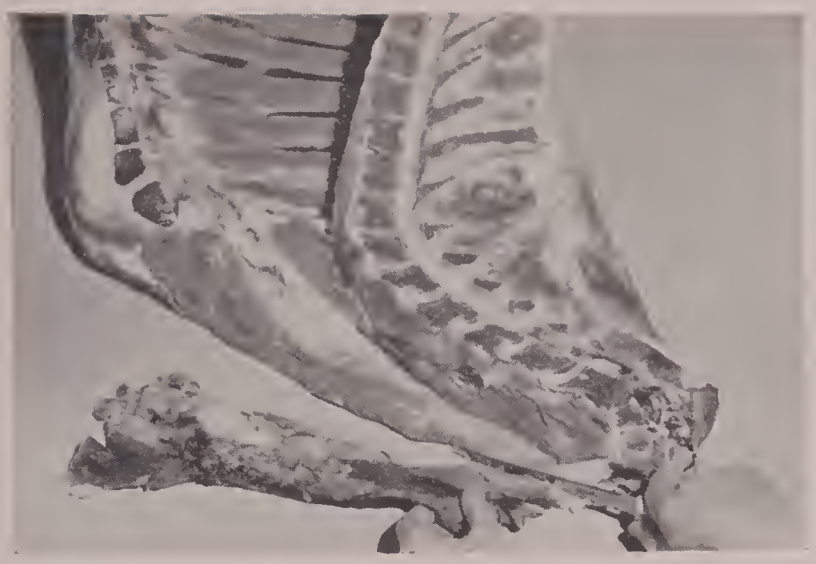


2. Take out arm bone after cutting through ball and socket joint. Remove bladebone by cutting meat from socket back to ridge, then scrape end of ridge bone. Pull blade bone from meat and remove by cutting along blade bone cartilage.

3. Cut thin meat from blade end of boneless outside shoulder.

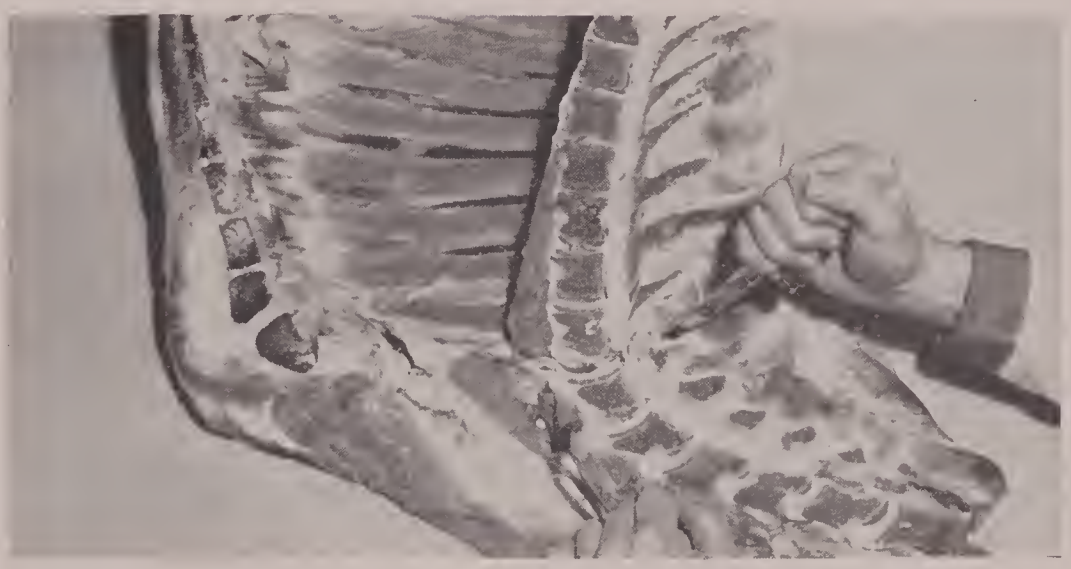
4. Roll and tie boneless outside shoulder for roasting. (May be used for veal cutlets.)

Trimming the Forequarter

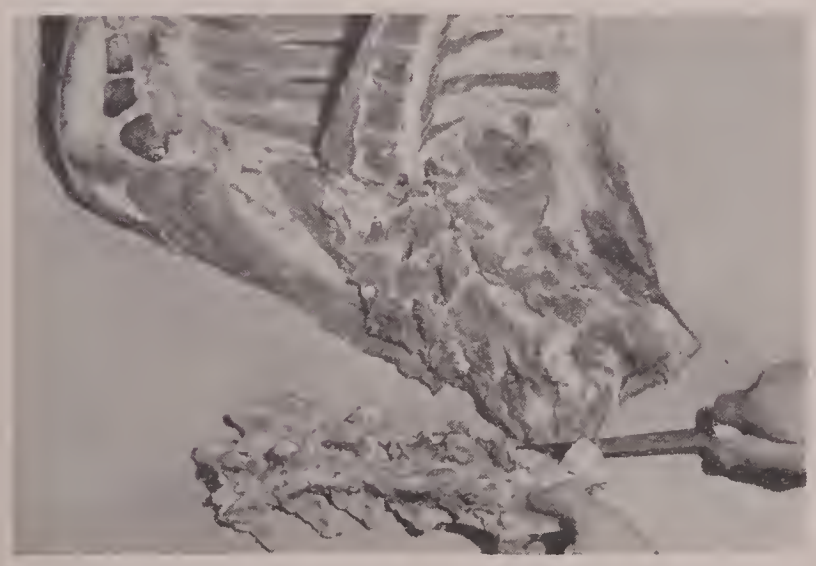


1. Trim throat side of neck.

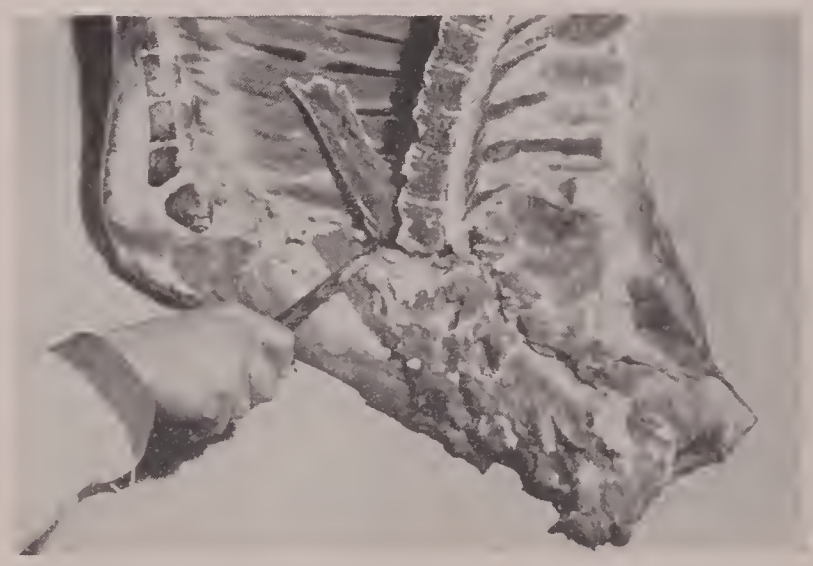
2. Cut between first and second neck vertebrae to remove atlas bone.



3. Unjoint neck from backbone by cutting through joint just in front of first rib vertebra.

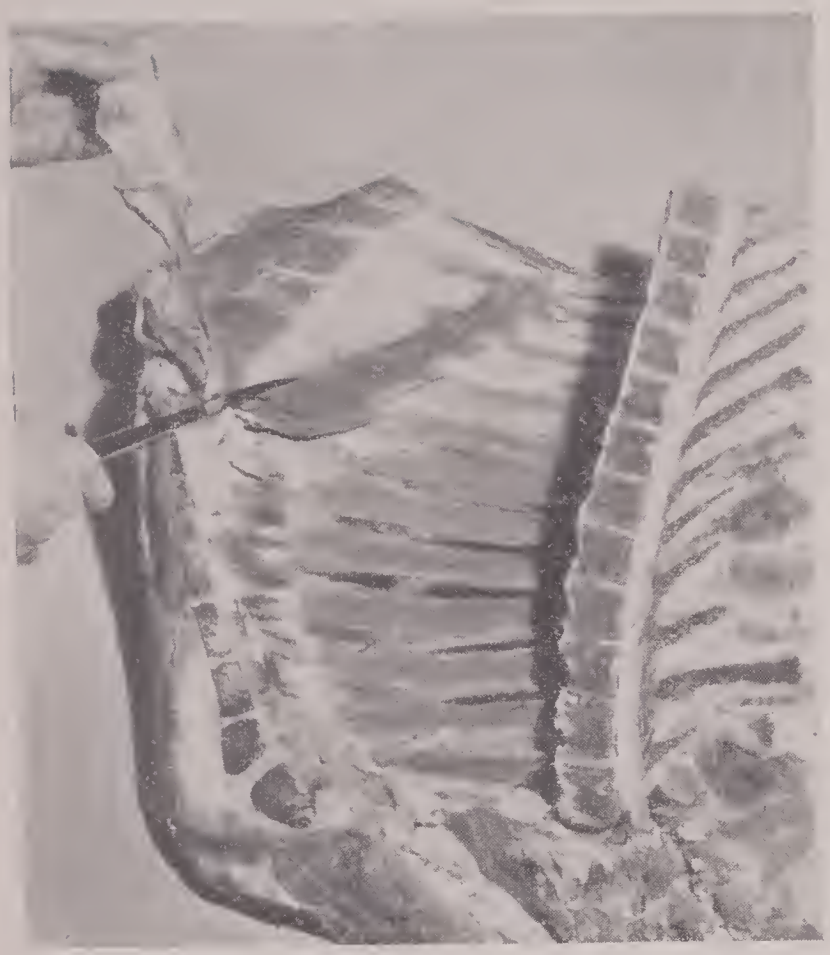


4. Cut underneath neck bone and lift it from neck meat.



5. Cut thin strip of meat from along chine bone. Use for stewing or grinding.

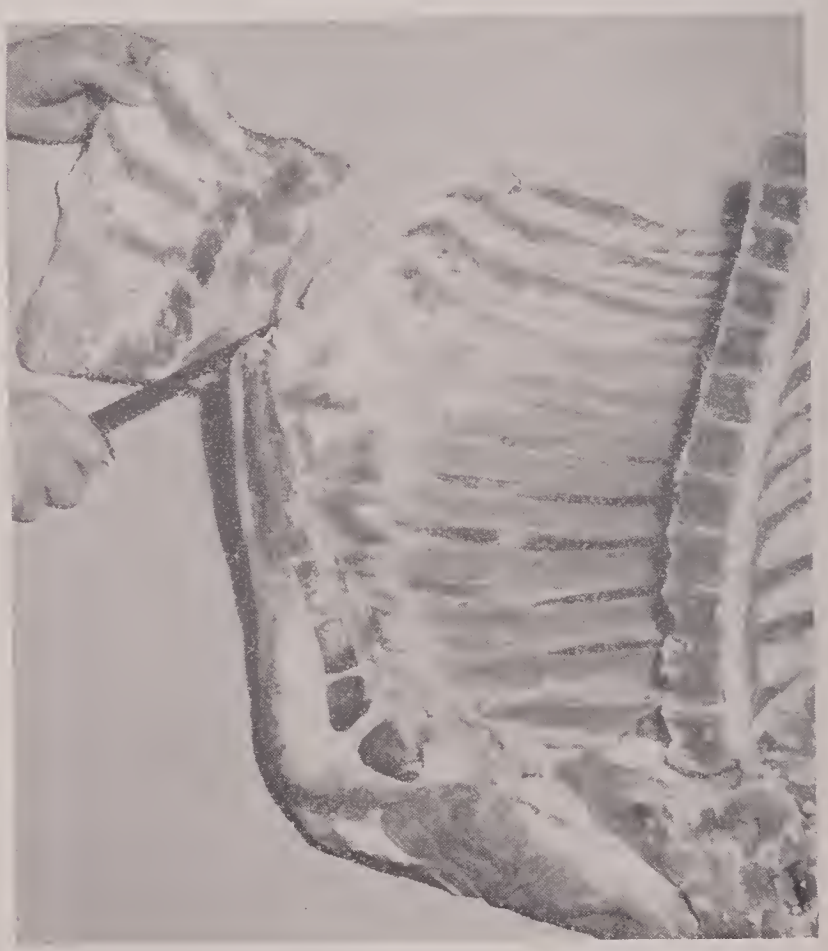
Removing Skirt and Plate Meat



1. Cut thin strip from navel edge of plate and also from edge of skirt meat.

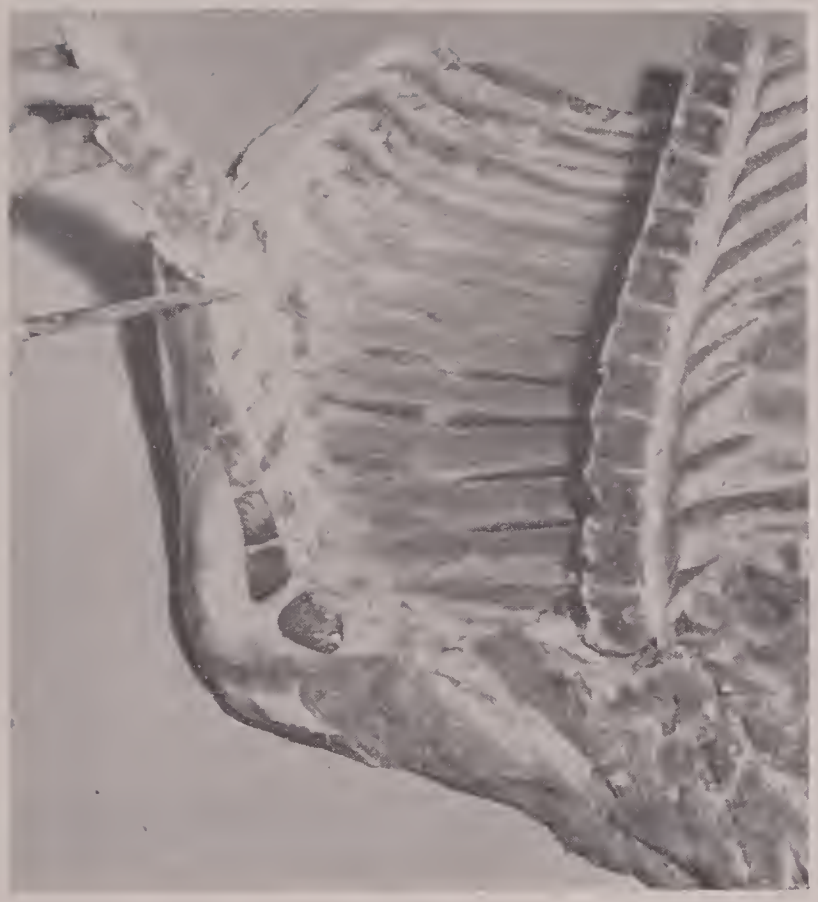
2. Pull membrane from skirt and plate meat.

3. Cut under skirt and plate meat, keeping close to rib bones and cartilages.



4. Remove skirt and plate meat. Use for stewing or grinding.

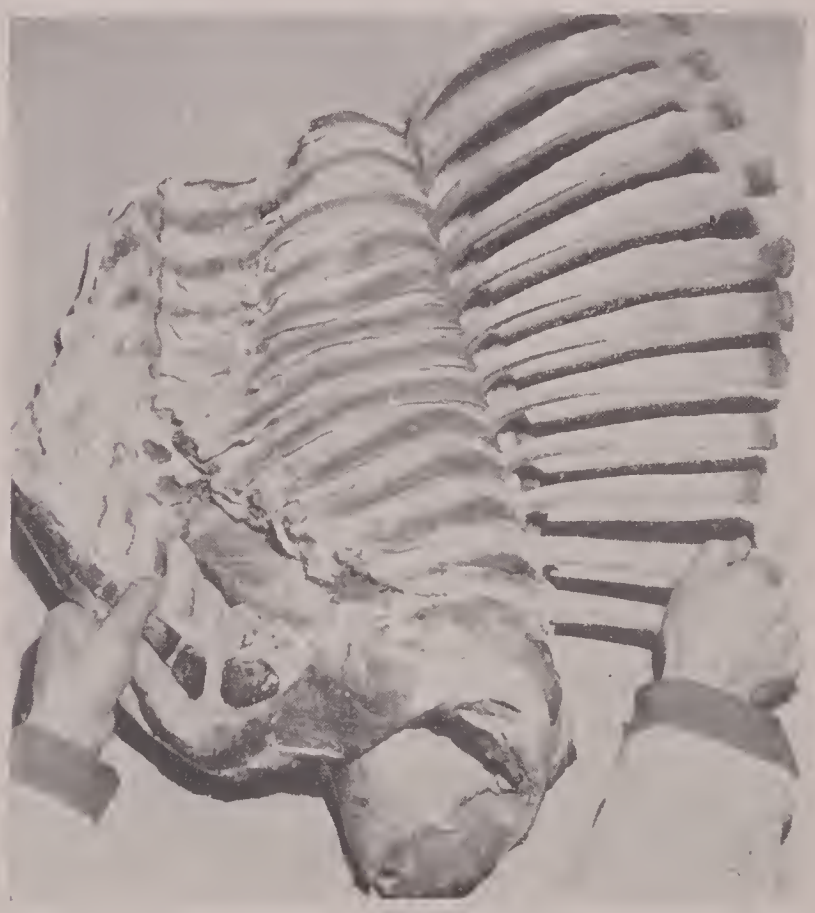
Boning Remainder of Forequarter



1. Remove thin meat to expose rib cartilages which attach ribs to breastbone.

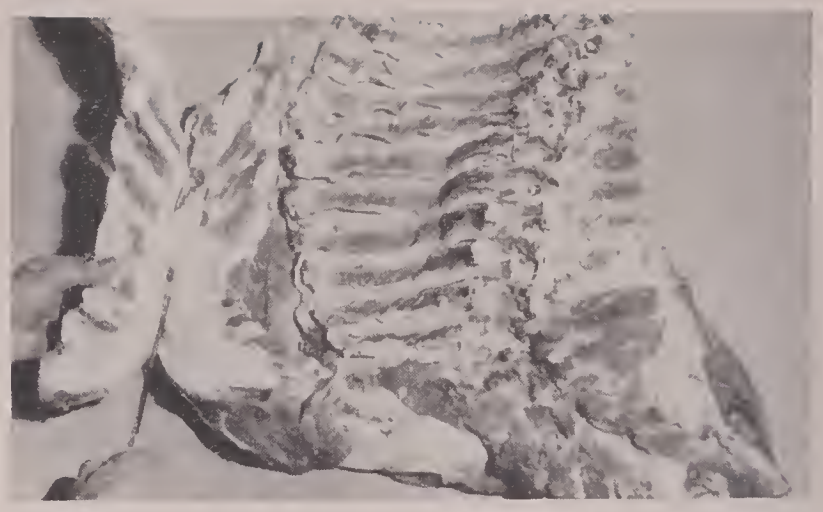
2. Score inside of ribs with tip of knife as indicated by dotted lines, then break breastbone and rib cartilages over edge of block.

3. Pull breast meat from rib bones.



4. Continue pulling meat from ribs until backbone is reached.

5. Cut meat from base of ribs and backbone.



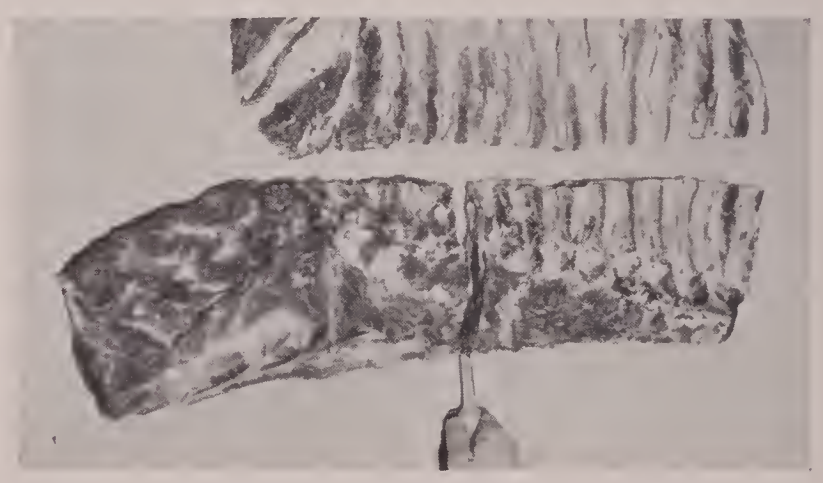
6. Remove breastbone and rib cartilages.

Removing Backstrap

Pull backstrap from full length of forequarter.

Making Boneless Roasts

1. Cut 2 or 3 inches below eye muscle to separate breast meat from back meat.



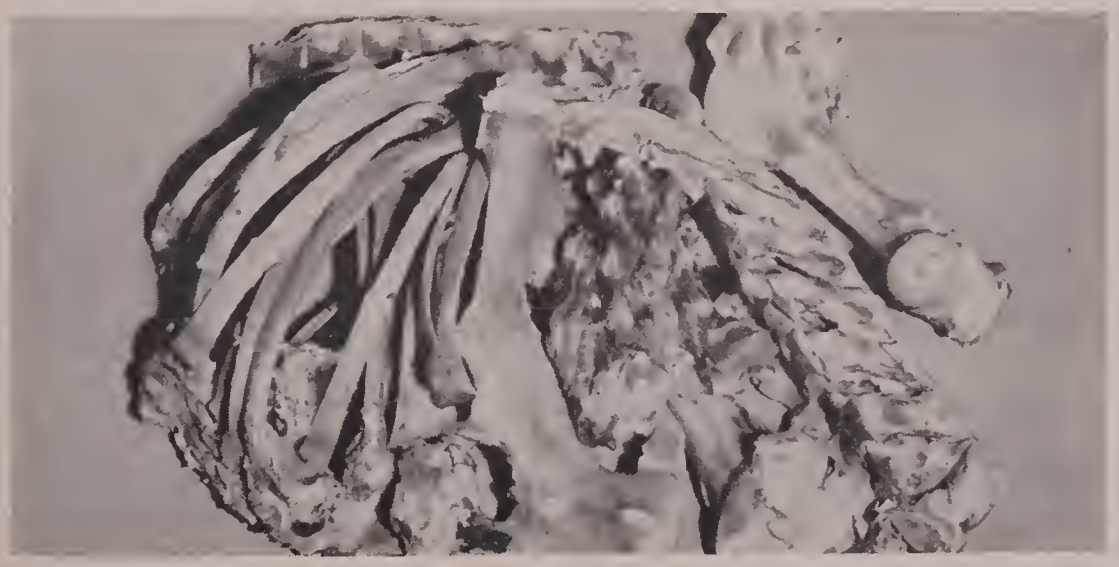
2. Cut boneless rib, inside shoulder and neck into two pieces of uniform length.

3. Two boned, rolled, and tied roasts from veal back.

Cutting Boneless Breast for Stewing

Cut boneless breast into uniform pieces for stewing.

Using the Bones



Saw and use bones for stock.

Cutting the Veal Hindquarter

Removing Kidney Knob, Hanging Tender, and Loin Fat

1. Remove kidney knob and loin fat; also hanging tender from left sides. Trim hanging tender and use for stewing or grinding.

2. Split open kidney knob and remove kidney for use in stews. Render trimmed fat for cooking.

Removing and Trimming the Flank

1. Follow natural seam to separate cod fat from knuckle section of leg. Cut along front of knuckle to within 2 or 3 inches of loin muscle at small end of loin.

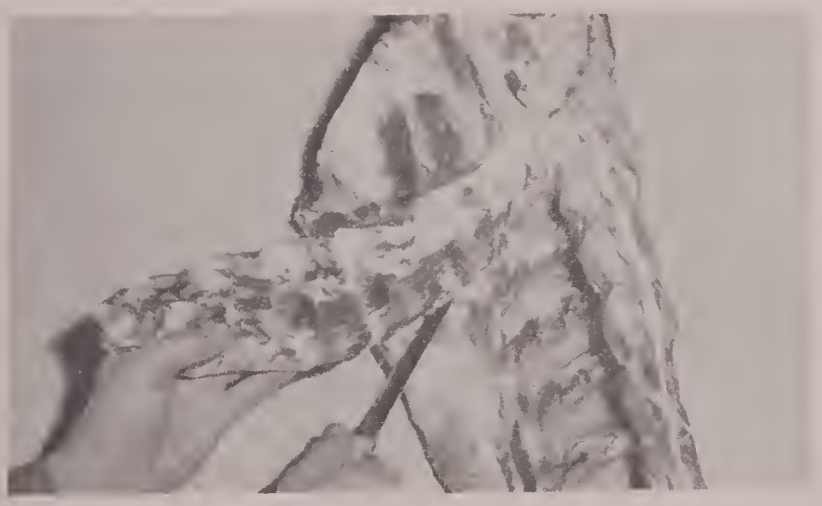
2. Cut thin strip from navel side of flank and pull membrane from inside of flank.

3. Pull flank steak with meat attached as far as it will pull easily; then cut across flank to separate meat from fat. Use boneless flank meat for stewing or grinding. Trim and render the fat.

Separating Leg from Loin and Rump

Cut through meat close to rump bone. Continue in a straight line through knuckle meat of leg. Unjoint leg bone at socket joint. Cut around end of leg bone to separate leg from rump and loin.

Removing the Tenderloin



1. Remove tenderloin from inside of loin.

2. Veal tenderloin may be used for cutlets or tied with loin strip for roasting.

Separating Loin End and Rump from Shell Loin

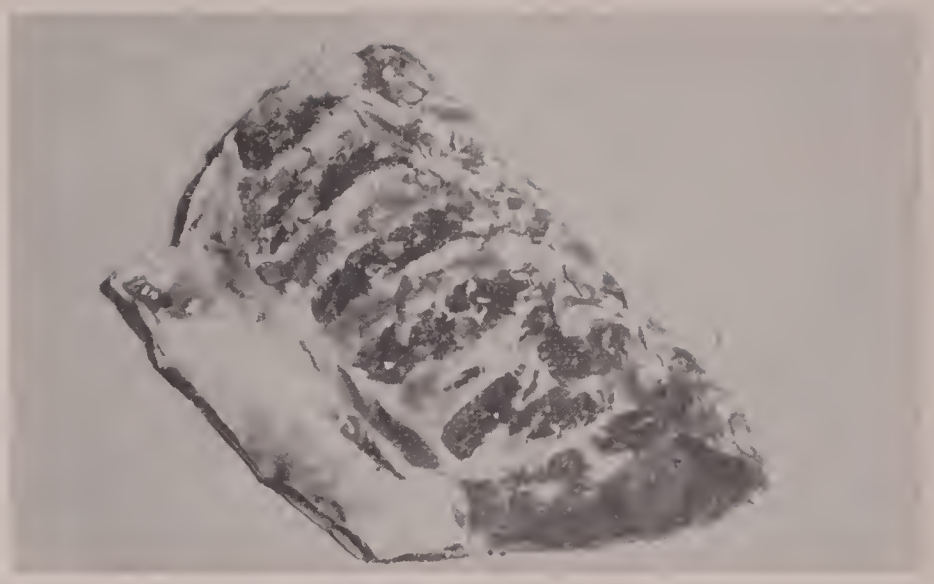
1. Cut between vertebrae X (sacral) and Y (lumbar).

2. Cut through meat between hip bone and last finger bone, then break over edge of block to remove shell loin.

Boning the Shell Loin

1. Cut loin strip from backbone.

2. Loin strip for cutlets, or it may be tied with tenderloin for roasting.



Making Boneless Loin Roast

1. Fold tenderloin and place over loin strip.

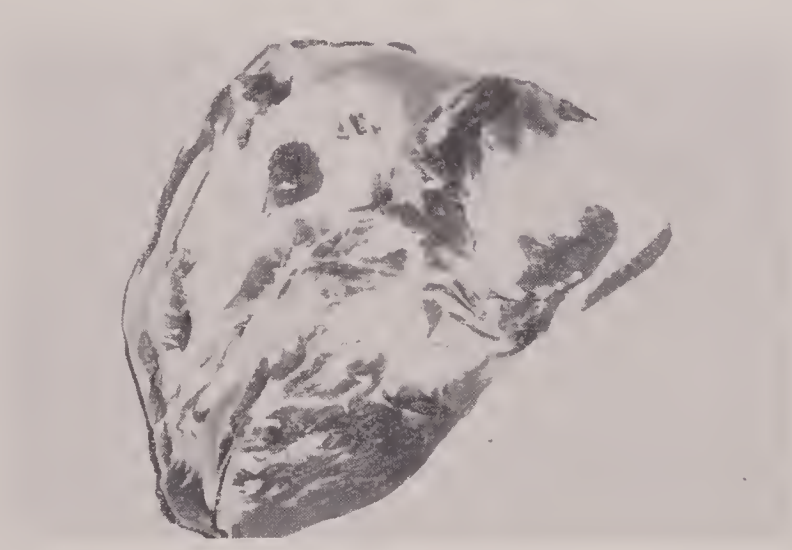
2. Shape and tie into uniform roll.

3. Boneless loin roast.

Boning the Sirloin-Rump

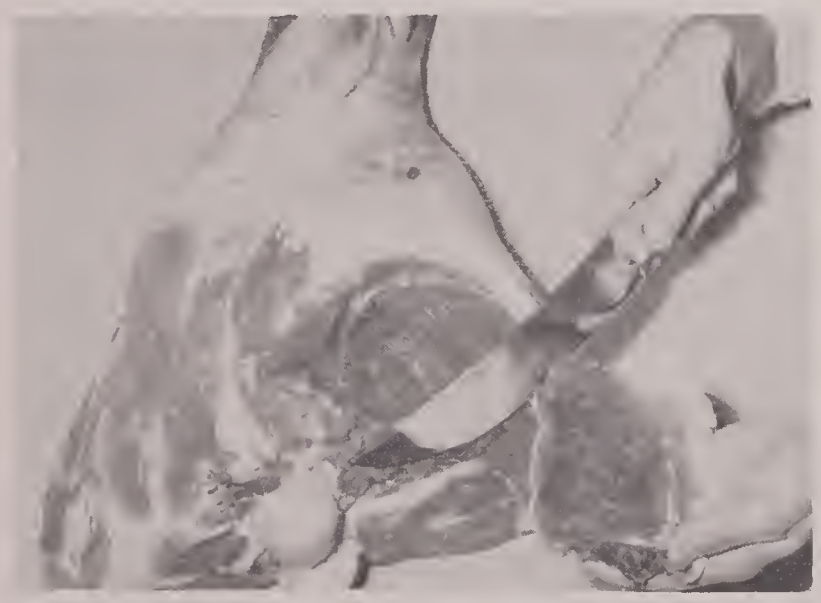
1. Unjoint tail bone from backbone. Remove this bone and the fat and lean from inside of rump.

2. Remove pelvic (rump and hip) bone.



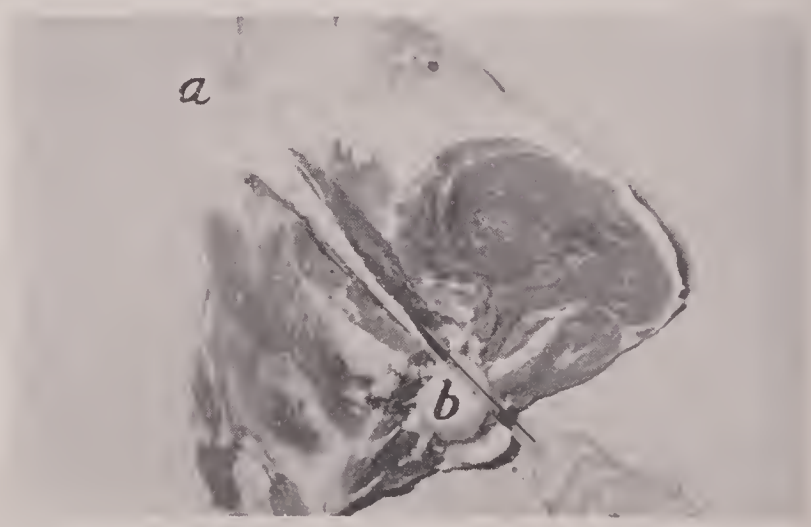
3. Sirloin-rump butt for roasts and cutlets.

Boning the Leg (Round)



Trim thin layer of meat and membrane from inside (top) leg.

Removing and Trimming the Knuckle (Tip)



1. Cut through meat to leg bone from kneecap (a) to end of bone (b).

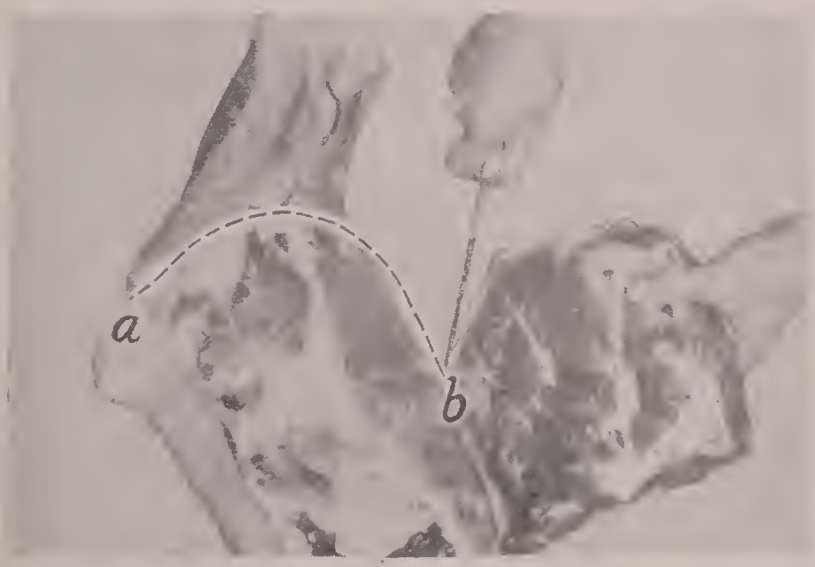
2. Turn leg so outside is on top. Follow natural seam to leg bone from kneecap to face of leg.

3. Unjoint kneecap and cut through membrane which attaches the meat to the leg bone. Pull knuckle from leg.

4. Cut membrane and meat from outside of knuckle. Cut from (a) to (b) to separate kneecap from knuckle.

5. Veal knuckle for roasts and cutlets.

Removing the Inside (Top) Leg



1. Beginning at dotted line "ab", follow seam to separate inside from outside leg.

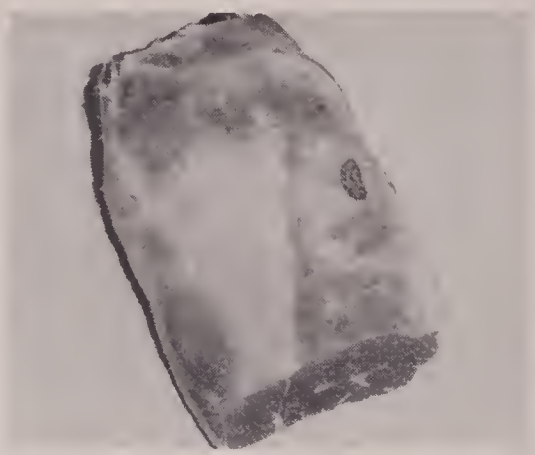
2. Inside (top) leg for roasts or cutlets.

Removing the Outside (Bottom) Leg

1. Cut along bone to separate all meat from shank and leg bones.

2. Remove thin end of shank meat.

3. Trim surface of meat, then remove tough membrane from edge of outside (bottom) leg.



4. Outside (bottom) leg for roasts or cutlets.

Section 2

Cutting Veal Cutlets By Machine

Veal Cutlets From the Forequarter

1. Cut behind thirteenth rib to separate forequarter from hindquarter.

2. Cut between fifth and sixth ribs to divide forequarter into two pieces.

3. Remove fore shank and brisket.

Cutting Shoulder Cutlets

1. Cut arm-bone cutlets.

2. Cut bladebone cutlets.

3. Veal shoulder cutlets for braising and frying.

Cutting Rib Cutlets

1. Separate breast from rib.

2. Remove chine bone.

3. Cut rib into cutlets.

4. Veal rib cutlets.

Veal Cutlets From the Hindquarter (Machine)

Remove kidney knob and loin fat.

Remove kidney from fat.

Remove flank.

Separate leg from rump and loin by cutting parallel with and close to rump bone.

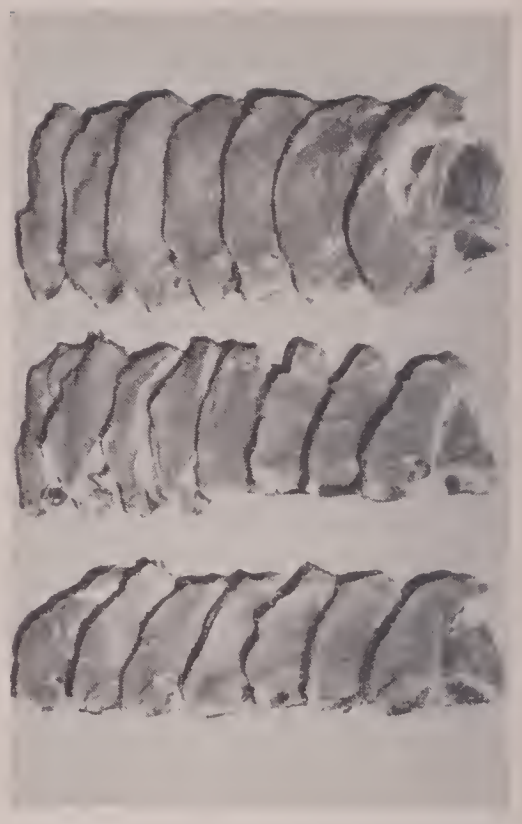
Remove end of leg bone from sirloin-rump section.

Saw off part of rump bone.

Cutting Loin Cutlets

1. Remove cutlets from full length of loin. Those from small end of loin should be cut thicker.

2. Continue making cutlets from sirloin and rump.



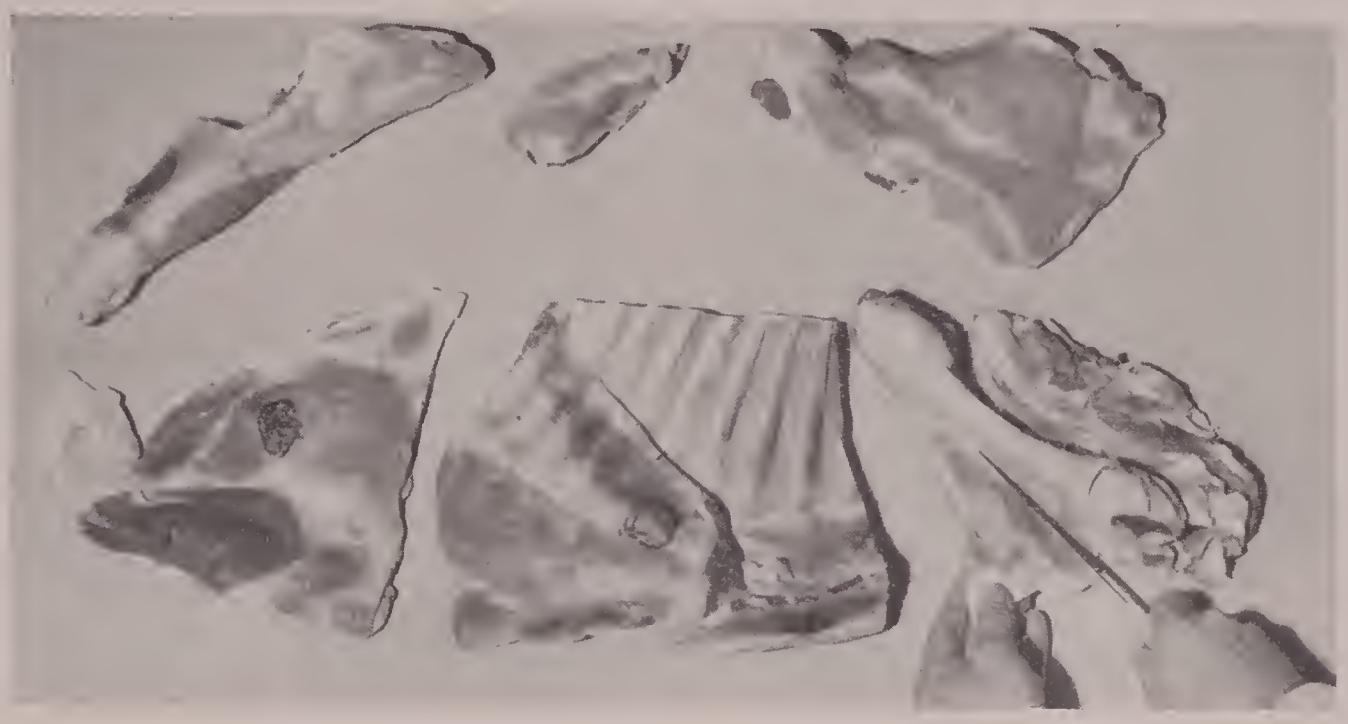
3. Loin and rump cutlets for braising and frying.

Cutting Leg Cutlets

1. Remove cutlets from leg.

2. Leg cutlets for braising and frying. From 2 to 3 servings may be made from each leg cutlet.

Using Breast, Flank, Shanks, and Neck



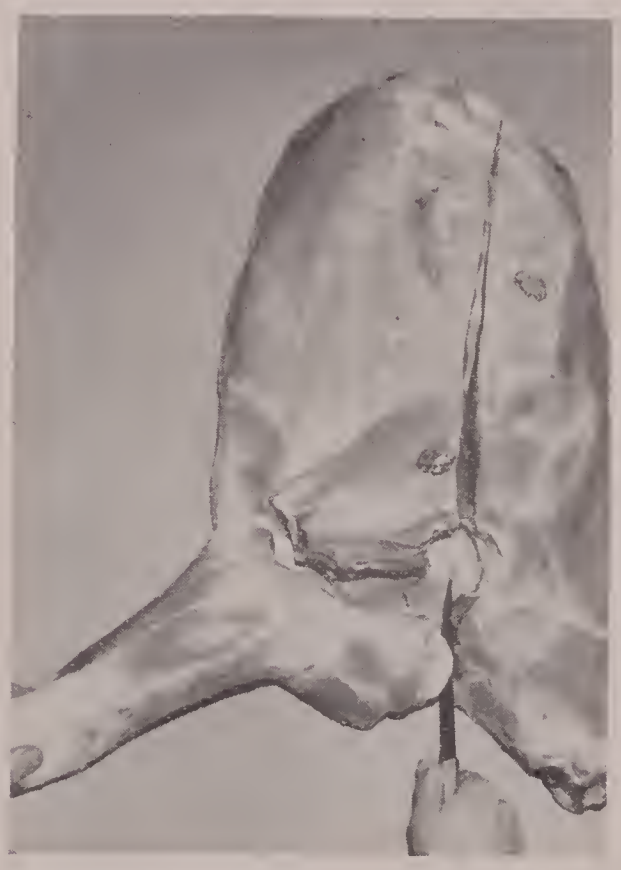
Bone out thin cuts for grinding or stewing.

Section 3

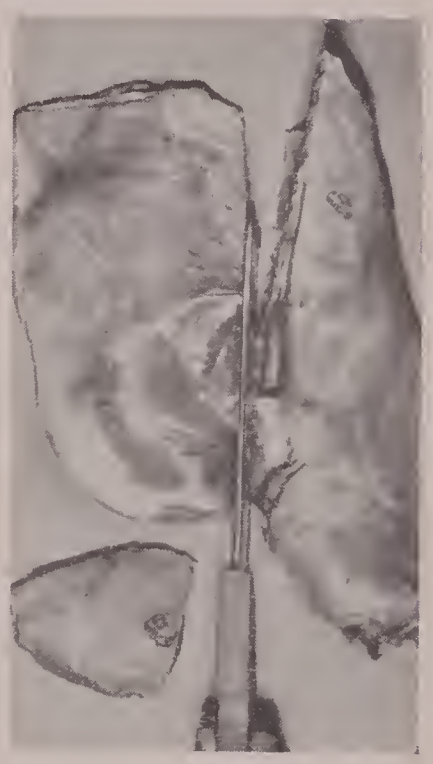
Cutting Veal Cutlets by Hand

Veal Cutlets From the Forequarter

Separate breast and shank-arm section from back by cutting from edge of eye muscle across ball of arm bone.



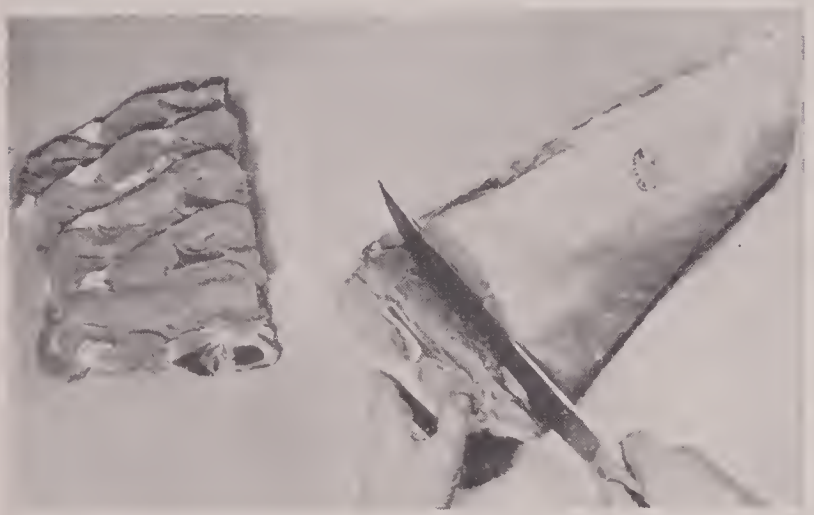
Remove canner shank from forequarter.



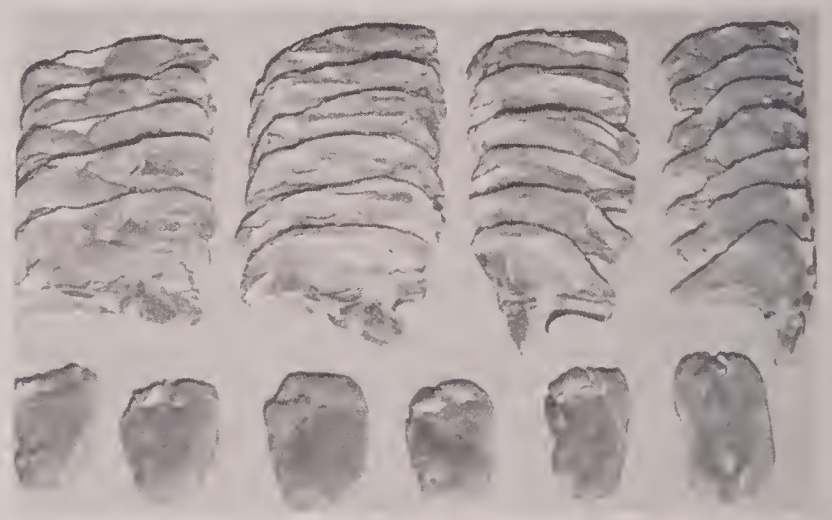
Lift lower end of clod from breast, then saw across rib bones to separate breast from back.

Cut lower end of clod into cutlets.

Cut close to socket of bladebone to remove neck from shoulder.



Remove cutlets from blade shoulder and rib.

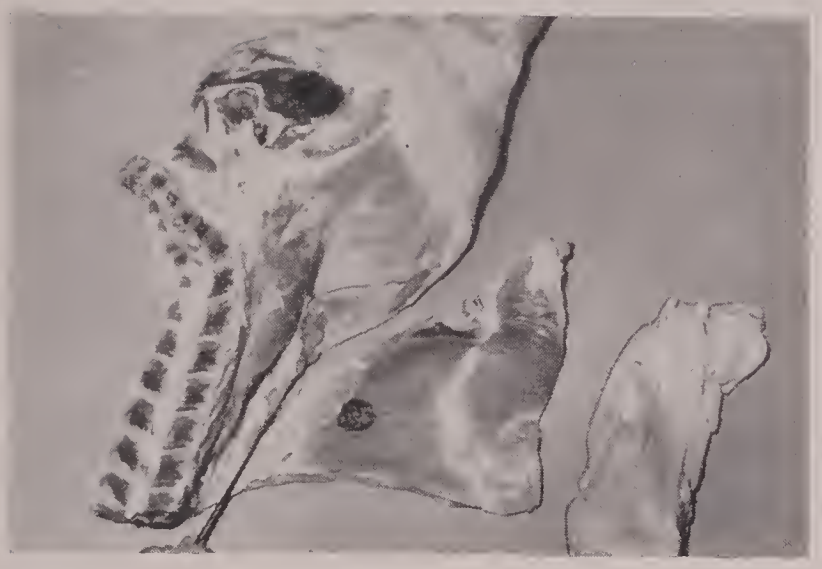


Cutlets from forequarter for braising and frying.

Using Breast, Flank, Shanks, and Neck

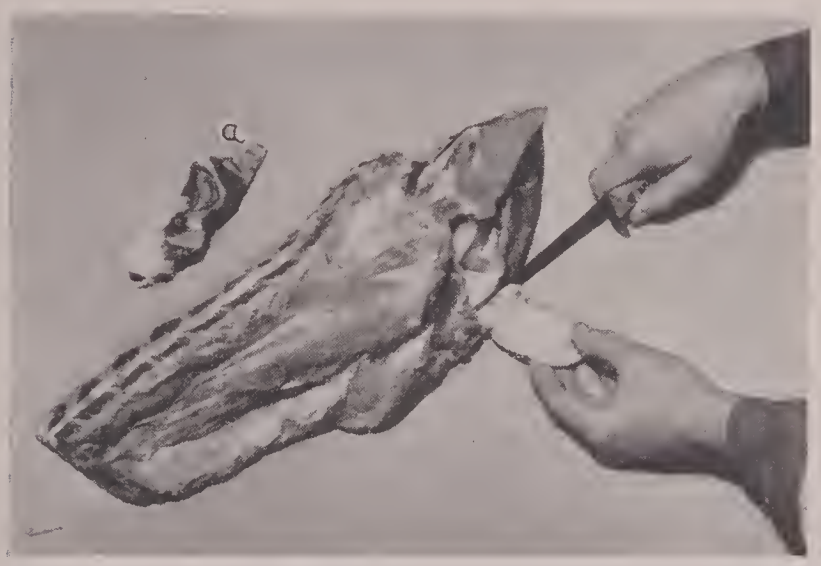
Bone out thin cuts for grinding or stewing.

Veal Cutlets from the Hindquarter



Remove kidney knob and loin fat, then separate flank from hindquarter.

Separate leg from rump and loin by cutting parallel with and close to rump bone.



Saw off exposed section of rump bone (a), then remove end of leg bone from sirloin rump section.

Remove cutlets from full length of loin and rump.

Cut leg into cutlets each of which will make two or three servings.

CHAPTER 6

GENERAL INFORMATION

The material presented in this chapter embraces a wide variety of subjects related to efficient utilization of meat: Meat tools, their use and care; rules for safety and sanitation; carving cooked meat; meat refrigeration with a chart on storage data; meat inspection and grading.

Section 1

Meat Tools: Their Care and Use

General.—The ability to do an efficient job of cutting meat requires training and practice—plus the necessary tools to work with. In an emergency, a boning knife can be used for all boning and cutting but it is better to have at least two knives—a boning knife to separate the meat from the bones and a steak knife to cut the boneless meat into roasts, steaks, and chops. A stone to sharpen the knives and a steel to keep them sharp are two other essential pieces of equipment.

Keep in mind that each piece of cutlery is designed to do a certain job. The meat cutter should study his tools and use each piece for the work it is intended to do. For example, the short, narrow, stiff blades of boning knives are designed especially for cutting through joints and around bones. Steak knives with long wide blades are made to cut steaks and roasts. Knives with thin blades, such as the roast slicer, is best suited for carving cooked meat.

Kind of tools.—With few exceptions, the following tools will fill every meat-cutting and carving need:

Boning knife, 6-inch blade (curved or straight).
Steak knife, 10-inch blade (curved or straight).
Cook's knife, 12-inch blade (Sabatier type).
Roast slicer, 12-inch blade (thin, flexible blade).
Steel, 12-inch (smooth or semismooth).
Saw, 25-inch frame and blade.
Cleaver, 8-inch.
Hook, hand, meat, boning.
Stone, sharpening, oil or water.
Block scraper.
Block brush.

Knives.—Sharp knives are essential for efficient work. One way to keep them sharp is to use them only for the work intended for them. A boning knife, for example, has a relatively narrow bevel along the edge; it will stand much more abuse and hard use than a properly ground steak knife which has a wide bevel and a thin edge. Make it a rule to *never use a steak knife for boning meat.*

Sharpening knives.—Knives should never be sharpened on a power-driven dry stone since this is liable to remove the temper from the cutting edge. The 8×2×1 inch oilstone available for galleys is a good sharpening unit. It is a combination stone with a coarse cutting surface on one side and a smooth cutting surface on the other. For best results, a light grade oil should be used liberally on it when a knife is being sharpened. Afterwards the stone should be wiped off carefully before it is put away.

If the knife is very dull, it should be put on the coarse stone first in order to get the correct bevel on the edge. To remove the feather edge and actually sharpen the blade, use the smooth

CARING FOR KNIVES

FIGURE 1.—Steeling knives.

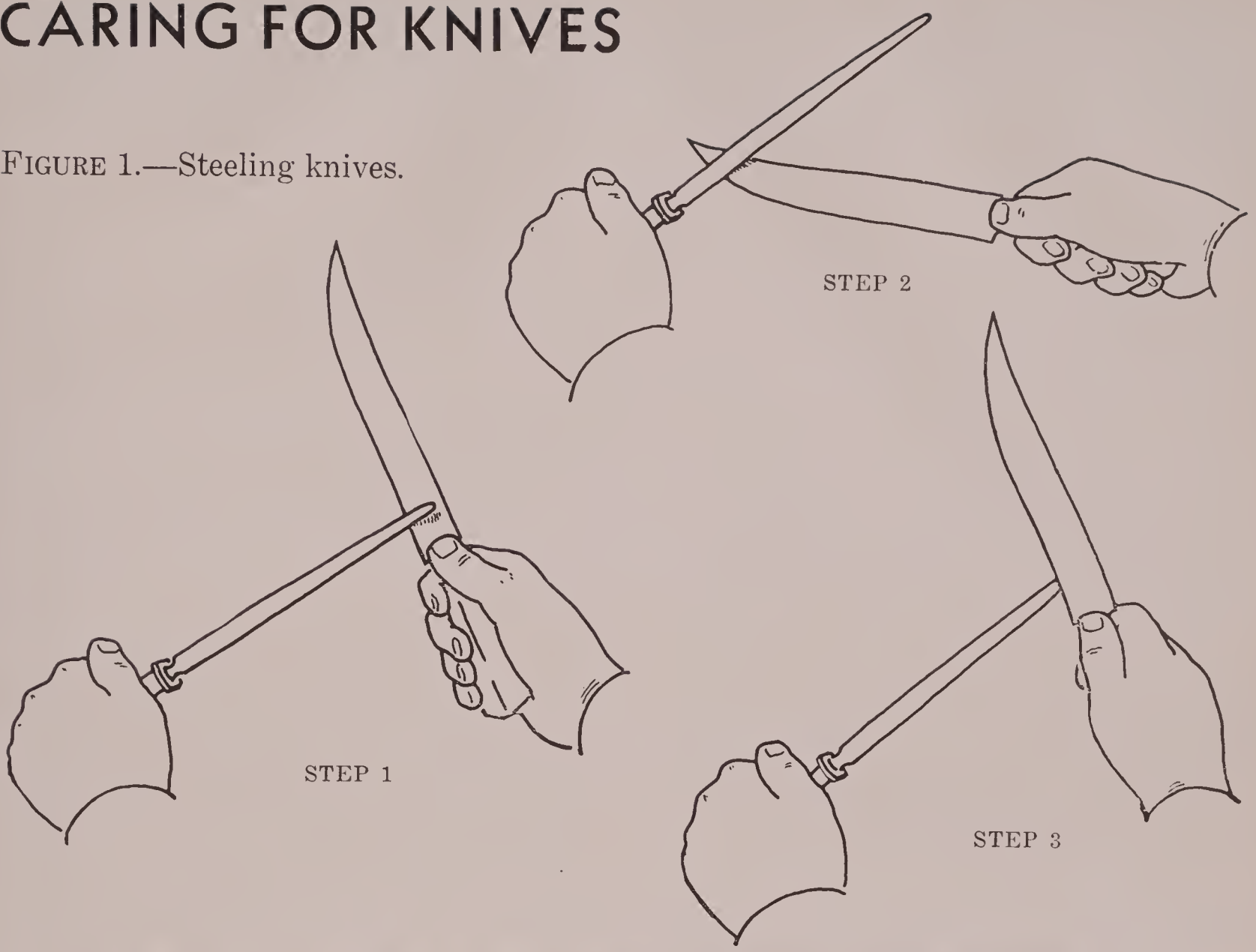


FIGURE 2.—Knife drawer.

side of the stone. Use the entire side of the stone and it will not "hollow out" at a particular point. It is best to draw the full blade, from heel to tip, across the full length of the stone in each movement. Turn the knife over and pull it back in the same manner from the opposite end of the stone. By following this procedure the blade will be sharpened evenly and smoothly and the stone will wear down uniformly. When the knife has a sharp edge, clean the blade and handle thoroughly before using.

Steeling knives.—After the knife has been sharpened on a stone, use a smooth or semi-smooth steel to keep it sharp. Imagine putting a razor on a rough steel and you will realize why a smooth steel is better than a coarse one for keeping a keen edge on a knife blade. Figure 1, page 119, shows the easiest and most effective method of steeling a knife.

1. The steel is used to true the blade and keep the edge in perfect condition. Although there is a technique to handling the steel, it is easily mastered with practice.

2. Hold the steel firmly in the left hand, thumb on top of the handle, with the point upward and slightly away from the body.

3. Place the heel of the blade against the far side of the tip of the steel (step 1). The steel and the blade should meet at a slight angle, about 25 degrees.

4. Bring the blade down across the steel toward the left hand with a quick swinging motion of the wrist and forearm. The entire blade edge should pass lightly over the steel (step 2).

5. Bring the knife into position again but with the blade against the near side of the steel (step 3). Repeat the same motion, passing the blade over the steel.

6. Alternating from side to side, a dozen strokes will true the edge.

Put the knife on the steel as often as you feel the edge needs it. Aim to have the blade sharp always.

Caring for knives.—Every first-class meatman takes a personal interest in keeping his equipment in good condition at all times. The sharp edge of a knife, like a razor, can be dulled easily. For that reason knives should never be thrown into a drawer with other tools. A wood strip (1 x 2 x 12 to 20 inches long) can be secured to the bottom of a table drawer, first sawing notches into it at intervals of 2 to 3 inches. These cuts (notches) should be made about 1¼ inches deep and of such width that a knife blade will fit easily into them. Arranged in order in these notches, the knives are readily available and at the same time the edges are protected. (See fig. 2, page 119.) In many instances a knife holder is fastened to the side of the meat block. This may be handier than the drawer arrangement, but to protect the knives as well as the holder, the knife handles should not protrude above the edge of the block. Whatever method is followed, it is essential that tools should receive the care and attention they deserve. Government specifications provide good knives and, if cared for, will give satisfactory service for a long time.

Responsibility for knives.—Each meat cutter should have his own tools, and he should be made responsible for their care and condition. If this plan is followed, the tools are much more likely to be in proper condition at all times. When several men use the same knives, there is no incentive for anyone to care for them and as a result, they are usually in bad shape. Even though there are only a limited number of steak and boning knives, they should be divided as equally as possible among the men who will be using them. From the standpoint of getting the work done, one sharp knife is worth more than six dull ones, but until each man is made responsible for his own tools, the Navy cannot expect to find sharp knives in its galleys and meat shops.

Cleaver.—Use this piece of cutlery as little as possible. Unless it is very sharp and used properly, the cleaver will shatter the bone and fill the surrounding meat with tiny bone splinters which not only cause inconvenience in eating but are dangerous.

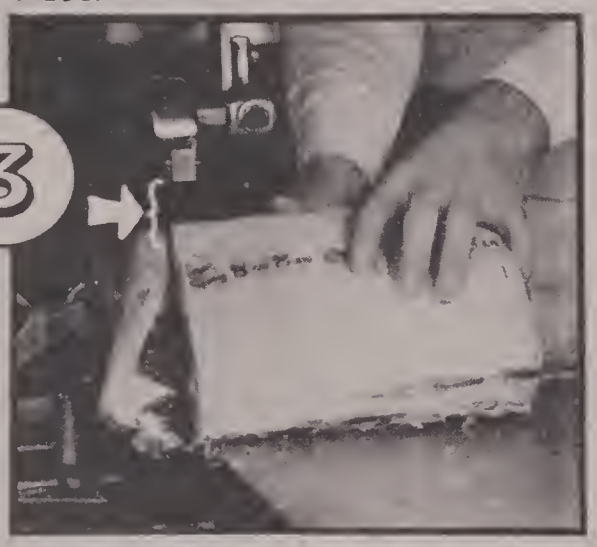
Hand meat hook.—Although a meat hook is inconvenient to one not accustomed to its use, it is in reality a valuable aid in boning meat. It not only saves time but it eliminates most of the danger of cutting fingers in the boning operation.

Metal mesh glove.—In addition to the meat hook, workers in meat packing plants have discovered that a metal mesh glove, worn on the free hand, is a good protection against cutting fingers while boning meat. The glove is made

KNOW YOUR MEAT SAW

■ *Before Starting –*
Be sure to have proper tension on the blade.

■ *Keep Guide Wheels Clean*
After each use clean saw guides and place a drop of oil on the bearings.



■ *Set Guide Blade*
Set guide about 2" above meat to keep blades from twisting and breaking.

■ *Remove Top Wheel to Clean*
Use damp cloth but **DO NOT** put into water.

■ *Do Not Force Blade*
Allow the blade to cut. It should not be necessary to exert pressure.

■ *No Shower Baths*
Clean thoroughly but **DO NOT** use a hose or bucket.

of a fine metal mesh which is flexible and interferes in no way with the action of the fingers. It covers the thumb and the first and second fingers. A strap on the wrist holds the glove in place. It is a practical safeguard for anyone who is boning meat.

Meat saw.—A saw with a dull blade will not do satisfactory work. Extra blades should be available for each saw. When a blade loses its edge and set, it should be replaced with a sharp one. Saws are sharpened by filing, and the teeth need to be set occasionally to give them the proper angle to prevent dragging. This requires special equipment. The average person is not competent to set and sharpen saw blades. The saw, with a 20- to 25-inch blade is best for most purposes.

Keeping meat tools clean.—Every piece of galley equipment, especially that which comes in direct contact with food, must be kept clean. Meat tools are no exception, but as long as wood handles are fastened on metal, as is the case with most knives, cleavers, and saws, the problem of keeping the tools in condition to pass rigid inspection will continue to exist. Regardless of the care exercised in manufacturing the knife, it is impossible to rivet two pieces of wood to a piece of steel and not leave a crack or crevice for dirt to collect. Boiling knives in water is not the solution to the problem. Hot water soaks into the wood, causing it to expand. As the wood drys it shrinks. In a short time the handles are loose and the cracks and crevices are bigger than ever.

A good practice is to fill all the cracks around the handle with plastic wood; then do not let the piece of cutlery lie in hot water. There is no occasion for leaving a knife in water for any length of time. The knife, cleaver, or saw can be kept clean by simply washing, then rinsing in clean water and wiping with a dry cloth. The preceding treatment not only will prolong the life of the cutlery, but will help keep it in better shape for inspection.

Cutting block and tables.—From the standpoint of efficiency in cutting meat, the condition of the blocks and tables upon which the meat is cut is nearly as important as sharp tools. Meat blocks that are pitted, rough, and uneven are not only difficult to work on but they are often unsanitary too. Consequently, every effort should be made to keep the cutting blocks and tables in first class condition.

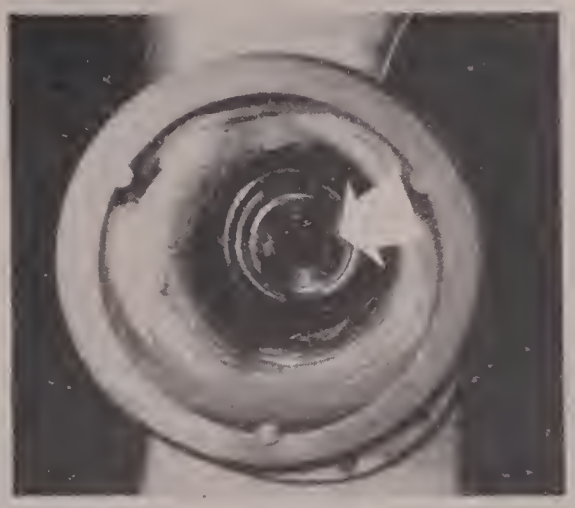
Caring for meat block.—Six rules for keeping the cutting surface of the meat block in good condition are as follows:

1. Use steel scraper and wire brush to clean cutting surface.
2. Keep cutting head of block dry.
3. Clean top of block after each use.
4. Use entire cutting surface as much as possible.
5. Maintain same bevel on edges of block that it had when new.
6. Give block a quarter turn regularly so cutting surface will wear down evenly.

Never wash the top of the meat block because moisture softens and expands the wood and weakens the glued joints. If the block is in daily use the surface soon becomes unsanitary as a result of the soft wood becoming saturated with water, blood, and meat juices. When the block gets in this condition about the only remedy is to have the top resurfaced.

Scraper and brush.—The metal scraper and wire brush are indispensable in the care of the meat block, because they help to remove most of the moisture from the wood which in turn keeps the cutting surface dry and hard; keeps the top of the block smooth; keeps the surface clean and sanitary; and makes the block last longer by preventing moisture from weakening the glued joints of the block.

MEAT GRINDER

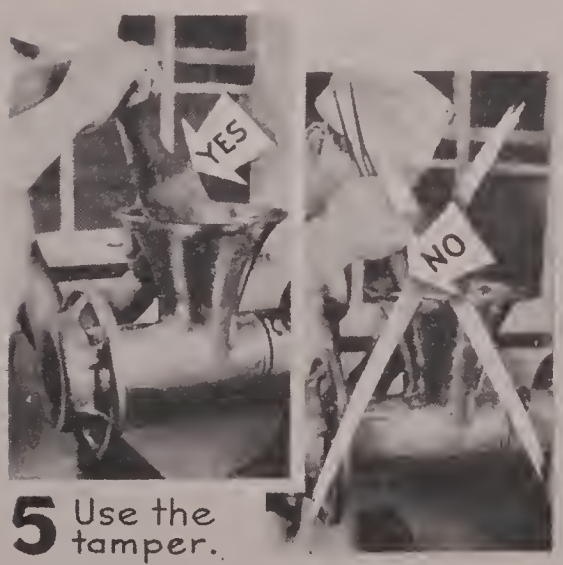


1 BE SURE the thrust washer is in place.

2 BE SURE cylinder is in place and thumb screw TIGHT.

3 A sharp plate and knife will do a faster and better job with less breakage.

4 BE SURE to lubricate hand wheel threads with suet or fat.



5 Use the tamper.

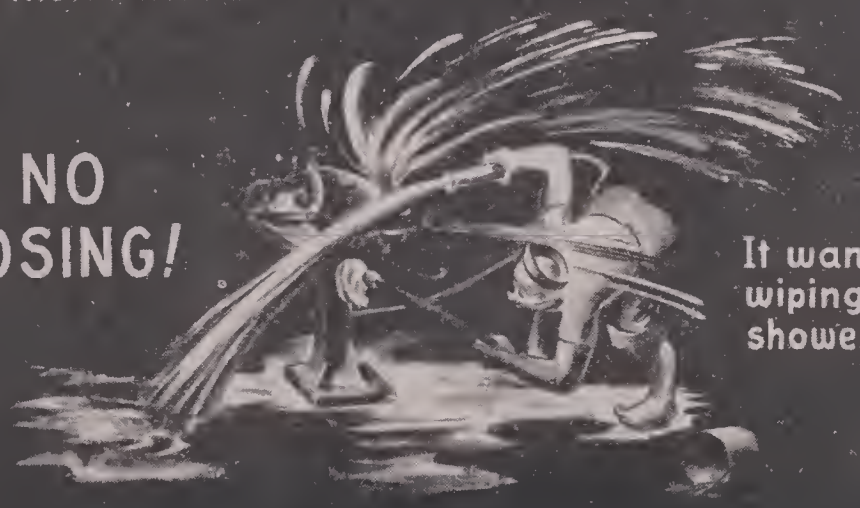
6 FROZEN MEAT means LOST TIME and BROKEN PARTS. It's not worth trying. Don't do it!

MEAT SLICER

DO NOT sharpen knife without reading and following all operating manual and special instructions.

Remove sharpening stone when not in use.

NO HOSING!



It wants a wiping - not a shower bath!

Section 2

Rules for Safety

Observation of the following list of rules for safety will eliminate many of the accidents occurring in meat shops:

1. *Keep handle of knife free from grease.*—A dry handle will assure a good grip and help to keep the hand from slipping forward onto the sharp cutting edge of the blade.

2. *Hold knife firmly.*—Your hand is less likely to slip forward onto the blade if you have a firm grip on the handle.

3. *Use meat hand hook when boning meat.*—A meat hand hook reduces accidents and increases boning efficiency.

4. *Do not grab for a falling knife*, you might miss the handle and grab the blade. It would be best to step back out of the way so the point of the blade will not hit your legs or feet.

5. *Never lay a piece of meat on a knife*, you may forget the knife is there when you pick up the piece of meat.

6. *Avoid carrying a knife when both hands are needed to carry meat or heavy packages.* There is always the danger of cutting yourself or someone else.

7. *Never throw knives together in a box or drawer*, it dulls the blade and there is always the chance of cutting yourself when picking up the knives again.

8. *Do not reach into soapy water for a sharp knife.*—The soapy water hides the knife and you may grasp the cutting edge.

9. *Be careful when using a cleaver.*—The chopping action is difficult to control so keep the free hand as far as possible from the path of the cleaver.

10. *Do not crowd your working space.*—A crowded working space reduces efficiency and is likely to cause accidents.

11. *Let the saw do the work.*—If you force the saw it may "jump" from the bone to your hand.

12. *Avoid "horseplay" with meat cutting tools* because knives, saws, and cleavers are dangerous and can cause serious harm.

13. *Use a stomper when feeding meat into a grinder.*—Meat grinders are responsible for many missing fingers. Be safe, use a metal or wooden stomper.

14. *Keep deck clean.*—Fat and meat trimmings are as dangerous to slip on as a banana peel.

15. *Treat bone scratches and knife cuts immediately.*—Even a minor bone scratch can become infected and cause blood poisoning, so do not neglect minor injuries.

Section 3

Rules for Sanitation

Sanitation in the meat shop is extremely important because most meat items are highly perishable. This requires cleanliness of personnel and strict sanitation in all spaces where meat is stored, cut, cooked, and served. A few basic rules for sanitation are given in this section.

1. Wash hands as often as needed.
2. Keep fingernails short and free from dirt.
3. Wear clean clothes.
4. Scour and scald all meat trays, dishes, and cooking utensils after each use.
5. Air dry all utensils.
6. Wash meat tools, then rinse and wipe with a dry cloth.
7. Clean meat blocks and tables after each use.
8. Scrub decks regularly.
9. Wash and scald meat grinder after each use.

INSPECTION STAMPS

FIGURE 1.—Inspection stamp of the U. S. Department of Agriculture. The number "166" represents the meat packing plant where the meat was processed.

FIGURE 2.—Special Navy inspection stamp, showing date and place of inspection.

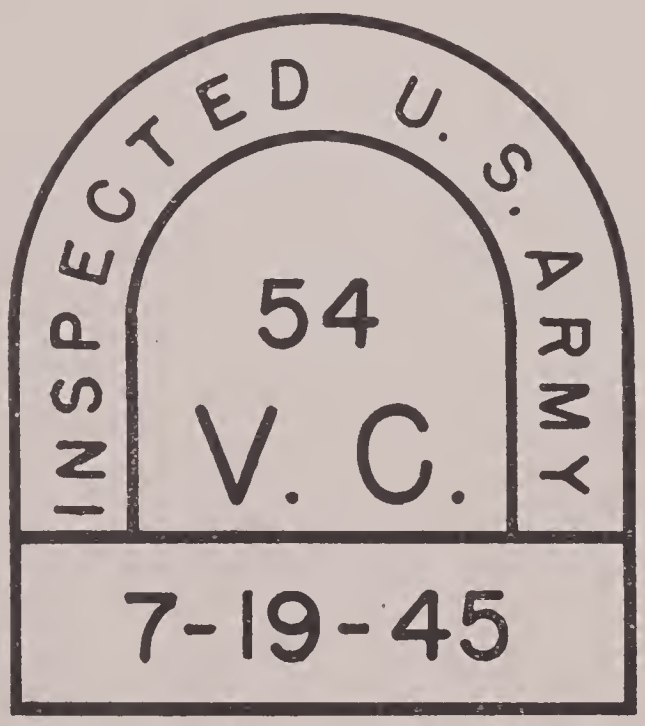


FIGURE 3.—Inspection stamp of the Army Veterinary Corps. Number "54" represents an identifying inspection number. "7–19–45" represents the actual date of inspection.

10. Clean inside of galley refrigerator, including all fixtures, at least once a week.

11. Wash, boil, and air dry all towels and cloths every day.

12. Clean and sterilize garbage cans (inside and out) and keep them covered at all times.

13. See that windows and doors are properly screened.

14. Be constantly on guard against flies, roaches, weevils, mice, rats.

Section 4

Carving Cooked Meat

By doing a good job of carving cooked meat, there will be more meat to eat and the servings will be more attractive and uniform in size. Here are some practical carving helps:

(a) *Let meat "set" before carving.*—Allow about 30 minutes after cooking for roast to get firm enough to carve well. Keep roast warm during this period.

(b) *Carve meat on wooden board or table;* protect the edge of the knife.

(c) *Hold firmly.*—It is impossible to make neat, attractive slices unless the meat is held firmly in place while being carved.

(d) *Carve with a thin sharp knife.*—A thin sharp knife (like the flexible roast meat slicer) slides through the cooked meat more readily than a thicker steak knife.

(e) *Remove strings and skewers* before starting to carve. Rolled roasts are the exception—remove strings as you come to them.

(f) *Carve across the grain.*—Roasts and pot-roasts are carved across the grain to shorten the muscle fibers, thereby making the slices more tender.

(g) *Make uniform slices.*—All slices should be uniform in thickness. Avoid making jagged wedge-shaped slices.

(h) *Keep carved meat hot until served.*—It is more appetizing when served hot and on hot plates.

Section 5

Inspection of Meat and Meat Food Products—General

All deliveries of meat and meat food products made to the Navy in this country must carry the inspection stamp of the United States Department of Agriculture (fig. 1, p. 126). This stamp appearing on the meat or the original package containing it, shows that the product has been "U. S. Inspected and Passed." It also shows the number of the meat packing plant where the meat was processed. Placed on the meat or the container by a Federal meat inspector, this stamp attests to the wholesomeness of the product.

Another inspection stamp required on meat and meat food products procured for Navy use is the special Navy inspection stamp shown in fig. 2, p. 126. Under certain conditions of procurement, common in wartime, the inspection stamp of the Army Veterinary Corps (fig. 3, p. 126) appears on the product instead of the Navy inspection stamp. One or the other is always required. The Navy or Army inspection stamp placed on the product at the meat-packing plant indicates that it has met the rigid requirements of the specification under which it was procured.

To make sure that the meat has retained its original wholesomeness, an inspection is usually made by a representative of the U. S. Department of Agriculture at time of delivery.

The word "fresh" whenever occurring in

Navy specifications for meats and meat food products, is interpreted to include fresh products which have been chilled but are not and have not been frozen. Specifications under which frozen meats and meat food products are procured, establish time limits for the period of storage prior to delivery. This period is reckoned from the date shown by the special Navy or Army stamp on the meat or the original package containing it.

Fresh provisions for the general mess are inspected for *quality* (condition) by a medical officer at time of delivery. The supply officer of the receiving activity or his authorized representative makes a *quantity* inspection of the meat at time of delivery.

Section 6

Meat Grading

Grading is done in the meat packing plant by a Federal meat grader who represents the U. S. Department of Agriculture. All meat grading is based on three factors: Conformation, finish, and quality.

Beef.—Beef carcasses and cuts are assigned to classes and grades indicating their probable palatability (flavor and tenderness). Classes refer to the sex and age of the carcass. Grades refer to the shape or "build" of the carcass or cut (known as *conformation*), the amount and distribution of fat (known as *finish*), the color, texture, and firmness of lean, and the character of fat and bone (known as *quality*).

The best beef usually comes from animals that have been bred for generations for meat production, not from dairy cattle or cattle which, like Topsy, "just growed." Beef from yearlings or from 2-year-old cattle is usually superior to beef from old cattle; beef from well-fed cattle is usually superior to beef from poorly nourished cattle.

Specifications under which beef is procured for the Navy call for steer and heifer beef carcasses of grades ordinarily available in all markets. The grades specified are those used largely in the shipping trade and by hotels and restaurants.

Although steer (males that are castrated in calfhood) and heifer (young females) beef of the same grade are usually similar in palatability, steer carcasses are generally preferred. Steer carcasses are usually somewhat thicker and meatier and may be distinguished by the cod fat in the pelvic region and by the shape of the pelvic bone. Heifer carcasses can generally be identified by finer shank bones and the immature, undeveloped udder. Both steer and heifer beef is distinctly superior to cow, bull, and stag beef of the same grade.

Cow (females which have borne one or more calves), bull (males that have not been castrated), and stag (males castrated after they have reached sexual maturity) carcasses as a group are inferior in quality. Bull and stag carcasses can be identified by extreme muscular development of neck and forequarter, by pronounced leanness throughout and by the dark red color and coarse texture of the lean. Cow carcasses can be distinguished by their angular conformation, the shape of the pelvic bones and the fatty tissue in the area where the udder has been removed. Cow carcasses will show hard, white, flinty bones and uneven distribution of fat which is often of a yellowish color.

Carcasses in the top grades are characterized by superior conformation as shown by short necks, thick chucks, wide, deep ribs and loins, and full, bulging rounds. Quality is evidenced by a bright, cherry-red color of lean that is firm and fine textured, plus a lace-like mixture of fat within the lean, called marbling. A carcass having red, soft bones with "buttons" (white cartilage) on the ends of the chine bones, evidences youth, another of the indexes of quality. Top grade carcasses are finished with a creamy white hard fat evenly distributed over the thicker parts of the carcass.

Veal.—Veal procured for use by the Navy must, like beef, meet specific requirements of grade and weight.

Desirability in veal carcasses and cuts is indicated by full, thick muscular legs, loins and ribs, and by a light pink color of lean which is firm and smooth in texture. The bones will be

fine, red, and porous, showing white tips (cartilage) on the ends of the feather bones. The kidneys are well covered with firm, white, brittle fat. Extremely light weight and very heavy weight carcasses are less desirable, and long, narrow, thin, angular carcasses indicate dairy breeding.

Lamb.—Lamb is delivered to naval activities by the meat packers in the form of carcasses and cuts. They may be either fresh, chilled, or frozen. The carcasses must meet definite grade requirements and should weigh between 30 and 60 pounds.

Desirable finish and conformation in lamb carcasses are the same as in beef. Quality is indicated by firm, fine textured, well marbled lean, and red, soft bones. In lamb, a light red, bright lean is an added indication of quality.

The comparatively small volume of mutton procured for the Navy must also meet rigid specifications for grade and weight.

Lamb may be distinguished from mutton by the presence of the "break joint," an 8-point waffle iron effect on the end of the shank bones. On mutton, a 2-point "spool joint" is found.

Pork.—Both fresh and cured wholesale cuts of pork are procured for Navy consumption. The fresh cuts generally available are loins (regular and semiboneless), shoulders, hams, and spareribs. Fresh pork cuts should be meaty and uniformly covered with a firm, white fat. Quality in pork implies firm, well-developed lean that is fine grained and not watery. The lean should be well marbled and show a light greyish-pink color. Fresh pork cuts are usually delivered "fresh frozen."

Cured and smoked bacon and ham play an important role in the Navy bill of fare. Specifications for these items call for proportions of fat and lean, type of cure, length of smoke, and weight that have proved to be most acceptable for use ashore and afloat.

Section 7

Refrigeration and Storage of Meat

Meat represents a major item in the cost of the Navy ration. Its importance in maintaining the health and morale of officers and men is well recognized. It is imperative, therefore, that utmost efficiency be followed in utilizing this important component. If meat is to be served as frequently as is desirable it is important that it be stored under the best possible conditions ashore and afloat.

It is recognized that the storage of meat presents problems peculiar to each activity. Some of the varying factors affecting the storage of fresh chilled, frozen, and cured and smoked meat are: (1) the grade and condition of the meat upon delivery for stowage; (2) prevailing humidity and temperatures; (3) refrigeration facilities available; (4) complement being subsisted; (5) frequency of provisioning; (6) method (order) of stowing; (7) type of wrapping or packaging; (8) the amount of storage life "used up" during previous storage and shipment. (Check carefully date of inspection at the meat packing plant.)

Storage of Meat: General Considerations

Refrigeration.—Good refrigeration for meat involves the control of three factors: Temperature, humidity, and air circulation.

1. *Temperature.*—The following temperatures are recommended as optimum for refrigerated spaces ashore and afloat: Chill space, 30° to 34° F.; freezer space, 0° F. or lower—lower preferred; thaw room, 36° to 38° F.

2. *Humidity.*—In chill spaces where meat is to be stored, a relatively high humidity is necessary to prevent excessive drying and subsequent meat shrinkage. A humidity range of 85 to 90 percent is considered desirable. If the relative humidity in the chill space is too high, the surface of the meat will become wet and sticky. Such a condition is ideal for the rapid growth of bacteria which cause meat spoilage. The relative humidity in the average mechanically refrigerated meat storage spaces, both chill and freezer spaces, is seldom too high and very frequently it is too low.

3. *Air Circulation.*—A prime factor in keeping the temperature in all parts of meat storage spaces at the recommended levels is proper circulation of the refrigerated air. No meat item should ever be stowed on the bare deck. In spaces where grating is not provided, dunnage should be placed on the deck to allow free circulation of air under all items stowed in the space. When the storage period of items received "fresh chilled" is to be lengthened by freezing those items it is extremely important that they be frozen thoroughly and as quickly as possible. This may best be accomplished by taking the items out of the boxes and allowing good circulation of air around each item. When the items are thoroughly frozen, they may then be more compactly stowed. As a general rule, when the recommended temperature in all parts of the refrigerated space is uniform and is maintained within the stacks in the freezer space, the circulation of air may be considered to be adequate. Nothing should be stowed directly on the refrigeration coils or immediately in front of blowers or fans of the refrigerating unit. Where practicable, it is desirable to build stacks of solidly frozen items no higher than the bottom of the blower or fan, thus leaving the space between the overhead and base of fan for free circulation of the refrigerated air.

Accessibility.—Stow meat in such a manner that at all times a variety may be had. Whenever possible, have items stowed so that breakouts may be made with a minimum of effort and limited disruption of stacks.

Under certain operating conditions afloat it may be necessary to remove meat from and discard cases or boxes prior to stowing the meat. Boneless and semiboneless meat, variety meats and sausage items (frozen) will normally, however, be stowed most satisfactorily if left in original shipping boxes. Make sure the product is solidly frozen before stacking.

Original stowing and breakouts.—In stowing meat, all possible haste should be used in order to conserve refrigeration and maintain the product in as good condition as possible. When stowing meat that is delivered in frozen state, as much of the original freezing as possible should be retained.

Breakouts should be so planned that the refrigerated space is open no more frequently and no longer than necessary. Each time the refrigerated space is opened warm air rushes in, raising the temperature and causing moisture condensation which freezes on the unit, lowering its efficiency.

Ease of inventory.—Subtraction of total breakouts of an item from a given refrigerated space from the total of that item stowed in that space is a common method of quickly approximating the quantity of that item remaining on hand. This method may be used as an expedient in estimating quantities on hand where accurate stowage and breakout records are available..

Sanitation and defrosting.—Attention to the principles of sanitation is important in the storage of meat and meat food products. Storage spaces must be kept clean and orderly to prevent contamination of the meat. Microorganisms responsible for spoilage may be introduced by workers tracking in dirt or placing spoiled products in the refrigerated spaces. Smoking in the storage spaces should be prohibited because it introduces foreign odors which will be absorbed by some products.

The refrigeration coils or unit should be defrosted and the decks, dunnage, and bulkheads scrubbed and cleaned as often as is practicable. In all cases, the engineering officer should be consulted regarding the defrosting of the refrigeration system.

Conservation.—Make every attempt to determine requirements as accurately as possible. The average storage life of the item should be taken into account when stowing. Whether the items are being stored for normal stock or seasonal reserves will influence their stowing. Do not stow more of a given item than is expected will be consumed during the average storage life of the item.

Rotation of stock.—In order to assure the breakout of oldest stocks first, be certain to check carefully the date of inspection at the meat packing plant. As a general rule, those meat items with the oldest date of inspection should be consumed first. Since the manner in which the item has been handled during storage and shipment appreciably influences its storage life, it may occasionally be necessary, because of the condition of the meat upon delivery, to issue it ahead of product in storage that shows an older date of inspection. This latter practice should be considered the exception rather than the rule.

Storage Data on Representative Meat Items

The table on page 132, giving approximate maximum storage periods for representative meat items under various storage temperatures, should serve as a general guide for commissary personnel charged with procurement, storage, breakout, and cutting of meat.

The storage periods given are based on the best available data and represent storage under optimum conditions. There are many factors which will influence the storage life of a given meat item so that it may be greater or less than shown in the table. However, conditions are more apt to be present which will shorten the storage period rather than lengthen it.

The storage periods shown in Group I and Group II are based on approximate total storage life of the product. Therefore, in estimating the expected storage life of a commodity, the date of inspection at the meat packing plant should be used. Such date deducted from date of delivery indicates the amount of storage life already "used up."

An explanation for each of the three storage groups shown in the table follows:

Group I, Chill Space.—The approximate storage periods listed in the table under Group I, "Chill Space," are based upon receipt of the meat items in "chilled" rather than "frozen" state. Chilled product is that which has never been frozen. Under certain conditions ashore, generally dependent upon frequency of deliveries, it is desirable to stow "fresh chilled" meat items for current use in the chill space, preferably at temperatures of 30° to 34° F. Where turnover of carcass meat at an activity is rapid, it has been demonstrated that its stowage in chill space is advantageous for the following reasons:

1. There is a tendency for improvement of flavor and tenderness in beef and lamb because of the action of enzymes at temperatures just above freezing.
2. Under good conditions of refrigeration shrinkage is less because the thawing period is eliminated.
3. Fresh chilled carcass meat can be handled more efficiently in the butcher shop than frozen carcass meat; and
4. The refrigeration load is reduced.

It is important that air circulation be sufficient only to maintain a uniform temperature in all parts of the chill space. A relative humidity of 85 to 90 percent will result in holding shrinkage (evaporation) to a minimum.

To determine the approximate storage life of any commodity listed, be sure to deduct the amount of storage life "used up" prior to delivery.

Group II, Freezer Space.—It has been demonstrated by ships, shore stations, and commercial organizations that all frozen meat keeps best at temperatures of 0° F. or below. It is recognized that it is not always possible for ships and shore activities to attain this recommended temperature in their freezer space. In those cases, temperatures nearest 0° F. should be sought. For example, 5° or 10° F. are far more desirable temperatures for the freezer space than 15° F. Group II lists approximate storage periods for meat items delivered frozen and stored at 15° F., in contrast to those items stored at the recommended temperature of 0° F. It must be recognized in using this table that the listed storage period is only approximate and that it represents good storage conditions. It must be remembered that a part of the normal storage life of frozen meat has already been used up when it is delivered to the ship or activity. Condition at the time of receipt is, therefore, important in determining additional storage life.

Avoid any pronounced circulation of the air in the freezer space, except when items are to be frozen under emergency conditions, for it favors the dehydration of products and may cause "freezer burn" and discoloration. Where mechanical air circulation refrigeration units are used, the slowest possible fan speed will generally produce a uniform temperature throughout the room. Inspection of stored items should be made at reasonable intervals to determine their condition.

Under most conditions ashore and in the majority of cases afloat, normal stock turnover for meat items held in freezer space (Group II) will be 35 to 45 percent less than the maximum storage periods shown in the table, page 132. Consistent with frequency of stock replenishment,

every effort should be made to hold meat items in the freezer space "no longer than is necessary" rather than attempting to hold them "as long as possible."

Group III, Maximum holding time after breakout from freezer.—The periods listed under Group III of the table represent maximum holding times for solidly frozen meat which has been held at temperatures between 0° F. and 15° F. All frozen meat should be thawed out gradually under refrigeration and used soon after thawing. The ideal temperature for the thawing period is 36° to 38° F. It should be remembered that thawing meat is always moist and provides an ideal place for development of bacteria and molds. Therefore, thawed fresh frozen meat should be cooked promptly. Thin cuts of meat expose greater surface area to spoilage than is true of thicker cuts.

Never thaw frozen meat in water. Packaged meats such as frozen boneless beef should be thawed under refrigeration. To speed up thawing of frozen boneless beef under refrigeration the boxes may be opened and the pieces broken apart. Some of the pieces may be placed in the cover and the remainder in the bottom of the box. The pieces should not be unwrapped.

Treat all thawed meat as highly perishable.—Refreezing of items once frozen, then thawed, should be done only as an emergency measure.

Table of Storage Data Relative to Chilled, Frozen, Cured and Smoked Meats and Meat Products

Approximate Maximum Storage Periods

Commodity	Group I		Group II		Group III		Notes
	Chill space		Freezer space		Maximum Holding Time After Breakout From Freezer		
	Stored at 30°–34° F.	Stored at 38°–40° F.	Stored at 0° F.	Stored at 15° F.	Held at 36°–38° F.	Held at 70° F.	
Carcasses and cuts							(a)
Beef, quarters or cuts	10–14 days	5–7 days	9–12 months	3–5 months	5–6 days	2 days	
Beef, boneless, frozen			12–14 months	4–6 months	6–7 days	2 days	
Pork, fresh, cuts	3–5 days	1–2 days	4–6 months	2–3 months	2–3 days	1 day	
Veal, carcass, sides, cuts	5–7 days	2–3 days	6–8 months	3–4 months	3–4 days	24–36 hours	
Lamb and mutton, carcass or cuts	8–10 days	4–6 days	8–10 months	3–5 months	4–5 days	24–36 hours	
Variety meats							(b)
Liver	2–3 days	1 day	4–6 months	2 months	1–2 days	12–16 hours	
Hearts, beef	3–4 days	2 days	5–7 months	2 months	1–2 days	18 hours	
Brains	2–3 days	1 day	3–4 months	6–8 weeks	1 day	12 hours	
Kidneys	2–3 days	1 day	4–6 months	6–8 weeks	1–2 days	12–16 hours	
Sausage							(c)
Bologna	10–14 days	5–7 days	4–6 months	2 months	5–7 days	2–3 days	
Frankfurters	1 week	3–4 days	4–6 months	6–8 weeks	4–5 days	1–2 days	
Luncheon meat, fresh	1 week	3–4 days	4–6 months	2 months	4–5 days	1–2 days	
Liver sausage	10–12 days	5–7 days	4–5 months	1–2 months	5–6 days	2–3 days	
Pork sausage	3–4 days	1 day	3–5 months	6–8 weeks	1 day	12–16 hours	
Cured and smoked							(d)
Bacon, slab, domestic	2 months	2–4 weeks	7–9 months	4–6 months	2–3 weeks	1 week	
Bacon, sliced, domestic	1 month	2 weeks	4–6 months	2–3 months	1 week	3–5 days	
Bacon, slab, overseas	5–7 months	3–4 months	1–2 years	1 year	4–6 weeks	2–3 weeks	
Bacon, Canadian style	4–6 weeks	2–3 weeks	4–6 months	2–3 months	10–14 days	4–5 days	
Ham, domestic	4–6 weeks	2–3 weeks	6–8 months	4–5 months	2–3 weeks	1 week	
Ham, overseas	3–5 months	2–3 months	1–2 years	9–12 months	1 month	2–3 weeks	
Pork, bellies (salt)	4–6 months	2–4 months	1–2 years	1 year	1 month	2–3 weeks	
Beef, corned (in boxes)	4–6 weeks	1–2 weeks	4–6 months	2–3 months	1–2 weeks	3–5 days	
Beef, corned (in barrels), pickle	4–6 months	2–3 months					
Miscellaneous items							(e)
Ham, whole, canned	6–8 months	4–5 months					
Beef, canned, dried, sliced	7–9 months	5–6 months					

Notes

(a) *Carcasses and cuts.*—Beef quarters and cuts and carcasses and cuts of lamb and veal should be hung or placed on racks when in chill space. If these items are in a solid frozen condition when received, they should be stowed as compactly as possible in the freezer space. Frozen, boneless beef should be compactly stacked.

Veal carcasses or cuts, particularly of the lighter weights and lower grades, are subject to rapid deterioration. Holding time of these items in the chill space should be held to a minimum.

Fresh chilled pork cuts should be treated as highly perishable.

(b) *Variety meats.*—These items are highly perishable. Hold storage time to the minimum.

(c) *Sausage.*—Pork sausage is the most perishable item in this group. The fact that many sausage items or "Cold Cuts" are rather highly seasoned and in casings should not be used as an indication that these items will "keep for quite awhile."

(d) *Cured and smoked meat.*—The keeping qualities of cured and smoked meats depend upon the type of cure, the length of the smoking period, and the method of packaging. The storage life of these items is further influenced by the condition of the storeroom with regard to humidity, temperature, and sanitation.

Growth of mold and development of rancidity in hams and bacon can be retarded by stowing these items in the chill space for current consumption and in freezer space for seasonal stocks. Since the growth of mold on cured and smoked meats is favored by the presence of moisture, excessive humidity should be avoided. If the relative humidity is high it is essential that good circulation of air be maintained.

Hams and bacon which have been individually wrapped in one or more layers of paper have a tendency to retain upon their surfaces any moisture which may have come from the product after wrapping. This moisture, in a measure, stimulates mold and bacterial growth. If hams so wrapped are held at temperatures of 45° F. or above for a considerable length of time, mold will grow on the surface and the surface of the meat will become more or less slimy due to bacterial growth. Surface slime and mold make the hams unattractive and unpleasant to handle. To the uninitiated, such hams may appear spoiled. However, surface mold and sliminess on hams rarely, if ever, renders them unfit for food. Such hams should not be surveyed or rejected for surface mold and slime alone. In most cases where this condition has been allowed to develop on hams and bacon the product can generally be "overhauled" in such a way that it is perfectly fit for food.

Surface mold and slime can be easily removed from smoked meat by brushing with a stiff-bristled brush and then wiping with a clean cloth moistened with a vinegar or salt-water solution. The product thus "overhauled" should be allowed to air dry. When the mold growth is heavy it may be trimmed away. If the ham does not have deep cracks or abrasions, the meat underneath the surface is usually found to be perfectly sound and wholesome.

(e) *Miscellaneous items.*—It is important that the canned, nonsterile meat items, Whole Ham and Sliced Dried Beef, be stowed in refrigeration space, preferably in the chill space and never in temperatures above 50° F.

CHAPTER 7

QUESTIONS AND ANSWERS ABOUT MEAT

The latest and most authentic information about the Navy's new and improved methods of handling and utilizing meat will be found in this chapter in a condensed and easily understood form. The answers to the questions have been checked for accuracy by authorities in the fields of home economics and nutrition, refrigeration specialists and meat specialists of the packing industry and the National Live Stock and Meat Board.

Covers 15 meat subjects.—To make the material readily available for reference purposes and for use in conducting classroom examinations, the questions and answers have been classified under 15 different headings:

Sections:

1. Kinds, classes, and grades of meat.
2. Principles of cutting and boning meat.
3. Beef:
   (a) General.
   (b) Hindquarter.
   (c) Forequarter.
4. Lamb.
5. Pork.
6. Veal.
7. Meat cookery.
8. Deep-fat frying.
9. Carving and serving meat.
10. Nutrition.
11. Meat tools—their care and use.
12. Care of meat blocks.
13. Safety practices.
14. Rules for sanitation.
15. Meat refrigeration.

Answers 434 meat questions.—These 434 pertinent questions about meat give a wide range of information which should make this chapter of interest and value to everyone connected with Navy subsistence, including commanding officers, supply officers, commissary officers, medical officers, mess officers, commissary stewards, ships' cooks, and student cooks.

Section 1

Kinds, Classes, and Grades of Meat

1. Q. Name the four major kinds of meat and the animal which produces each kind.

A. (1) Beef from cattle. (2) Veal from calves. (3) Pork from hogs. (4) Lamb from lambs.

2. Q. What are the two general types of cattle?

A. (1) Beef type cattle (blocky, thick, and meaty). (2) Dairy type cattle (angular, narrow, and bony).

3. Q. Give two reasons why the Navy buys carcasses from beef type cattle.

A. (1) They have a high percentage of meat to bone. (2) They have a better distribution of fat and lean. (3) The cooked meat is usually more tender and palatable.

4. Q. What are the five classes of beef cattle?

A. (1) Steer. (2) Heifer. (3) Cow. (4) Stag. (5) Bull.

5. Q. Beef for delivery to naval activities as carcasses and primal (wholesale) cuts is limited to what two classes?

A. Steer beef and heifer beef.

6. Q. Navy frozen boneless beef is made from what classes of beef carcasses?

A. Steer and heifer carcasses.

7. Q. Give three factors which are considered in grading beef, lamb, pork, and veal carcasses.

A. (1) Conformation. (2) Finish. (3) Quality.

8. Q. What is meant by the term "conformation"?

A. Conformation refers to the general build, form, shape, contour, or outline of the carcass, side or cut.

9. Q. What is meant by the term "finish"?

A. Finish refers to the amount, color, character, and distribution of fat; in other words, to: (1) The thickness, color, even covering, and firmness of fat on the outside of the carcass, side, or cut. (2) The amount of fat on the interior of the carcass, side, or cut. (3) The intermingling of fat with the lean. (4) The amount of fat between the larger muscles.

10. Q. Quality in meat is indicated by what factors?

A. (1) Color of fat and lean. (2) Texture of meat. (3) Amount of fat and degree of marbling. (4) Color and character of bone.

11. Q. What is meant by the term "marbling"?

A. Marbling refers to the intermingling of fat with the lean. The surface of the meat (cut across the grain) as in the rib, loin, round, or chuck, will show the presence or absence of marbling.

12. Q. What does marbling in meat indicate?

A. The presence of marbling indicates quality. It is a factor which influences the caloric value and the palatability of the meat when properly cooked.

13. Q. Name three factors which are considered desirable in the conformation of dressed beef, lamb, pork, and veal.

A. (1) Full ribs and loins. (2) Thick plump legs (rounds). (3) Smooth shoulders.

14. Q. What does the Federal Inspection Stamp indicate?

A. That the product is sound, wholesome, and fit for human consumption.

15. Q. What does the Federal Grade Stamp indicate?

A. The grade (or quality) of the product.

16. Q. Should the inspection and grade stamps be removed from meat before cooking?

A. Not necessarily. The stamps are made from harmless vegetable dyes and need not be removed.

17. Q. What are the grades of steer and heifer carcasses?

A. *Government grades*

(1) Prime or Choice	AA
(2) Good	A
(3) Commercial	B
(4) Utility	C

18. Q. What is the difference between fresh chilled meat and fresh frozen meat?

A. Fresh chilled meat has never been frozen but was chilled thoroughly at temperatures slightly above the freezing point. Fresh frozen meat has been frozen solid.

19. Q. In what form is pork procured for the Navy?

A. As primal (wholesale) cuts, such as loins, hams, picnics, spareribs, etc.

20. Q. In what three forms or styles may fresh beef be delivered to the Navy?

A. (1) Carcass beef, fresh chilled or frozen (forequarters and hindquarters). (2) Primal (wholesale) cuts, fresh chilled or frozen (chucks, rounds, etc.). (3) Fresh, frozen, boneless (50-pound packages).

21. Q. Frozen boneless beef is divided into what three classifications for Navy use?

A. (1) Roasting and frying beef. (2) Stewing and boiling beef. (3) Chopped beef.

22. Q. What are the minimum and maximum weights of lamb carcasses which can be accepted for Navy use?

A. Minimum 30 pounds, maximum 60 pounds.

23. Q. Name four variety (organ) meats.

A. (1) Liver. (2) Heart. (3) Tongue. (4) Kidneys. (5) Sweetbreads. (6) Brains. (7) Tripe.

24. Q. What is cured meat?

A. Meat which has been processed in pickle, or dry salt, or dry cured.

25. Q. What is smoked meat?

A. Cured meat which has been given a smoke treatment.

26. Q. Name three cured meats and three smoked meats.

A. *Cured meats:* Salt pork, corned beef, pickled pigs feet, pickled tongue, pickled ham, and pickled spareribs. *Smoked meats:* Smoked ham, smoked picnic, smoked shoulder butt, smoked jowl, smoked hocks, smoked spareribs, bacon, Canadian style bacon, smoked tongue, and dried beef.

27. Q. (a) When are cured and smoked meats particularly important to the Navy? (b) Why?

A. (a) Afloat and at advance bases. (b) Because cured and smoked meats are less perishable than fresh meats.

28. Q. Veal for the Navy is divided into what two classes?

A. Class I, light veal, and Class II, heavy veal.

29. Q. What are the minimum and maximum weights of light veal (Class I) carcasses?

A. Minimum 75 pounds, maximum 120 pounds.

30. Q. What are the minimum and maximum weights of heavy veal (Class II) carcasses?

A. Minimum 120 pounds, maximum 250 pounds.

Section 2

Principles of Cutting and Boning Meat

1. Q. What kind of a knife is used in boning meat?

A. Boning knife (straight or curved).

2. Q. What kind of a knife is used in cutting steaks and chops?

A. Steak knife (scimiter or butcher).

3. Q. What kind of a knife is used in carving cooked meat?

A. Roast slicer.

4. Q. Give two reasons for using a hand meat hook when boning meat.

A. (1) Makes boning meat easier and faster. (2) Enables boner to do a better job. (3) Helps prevent accidents.

5. Q. What are the advantages of using a saw instead of a cleaver in cutting meat?

A. (1) Bone splinters will be eliminated. (2) Chops will be more uniform in thickness. (3) Meat will be more attractive in appearance.

6. Q. Give three reasons why a sharp knife is important in cutting meat.

A. (1) Helps to cut steaks and chops which are uniform in thickness and attractive in appearance. (2) Reduces waste by eliminating ragged edges. (3) Makes work easier. (4) Saves time.

7. Q. In cutting meat, what are the disadvantages of short, choppy knife strokes?

A. (1) They slow down the cutting work. (2) They make ragged, unattractive cuts. (3) They increase cutting loss.

8. Q. Why must the knife handle be held firmly?

A. (1) To help prevent accidents. (2) To assure smoother, more accurate cutting.

9. Q. In cutting carcasses of beef, lamb, and veal, why should the thin meat be separated from the thick meat?

A. So that all the meat from the carcasses may be cooked and served to the best advantage.

10. Q. Why should the tender meat cuts be separated from the less-tender cuts?

A. Because the tender cuts should be cooked with dry heat (roast, broil, griddle-broil, fry) while the less-tender cuts should be cooked with moist heat (braise, stew, cook in water).

11. Q. Give three reasons for following the natural dividing seams between muscles when boning meat.

A. (1) It is easier to separate the tender and the less-tender muscles (cuts). (2) The various cuts can then be cooked by the methods to which they are best adapted. (3) There will be fewer loose pieces on the large meat cuts. (4) The meat is more apt to be cut so that it can be carved across the grain. (5) The slices will hold together better during carving and serving.

12. Q. Why should excess fat be trimmed from uncooked meat cuts?

A. (1) So that it may be rendered and used for cooking purposes. (2) To improve the appearance and palatability of the cooked meat servings.

13. Q. How much fat covering should be left on a roast?

A. About one-half inch of fat is sufficient to protect the roast during cooking. This amount of fat will assure a juicy, well flavored, and easily carved roast, providing the meat has been cooked properly.

14. Q. Why should meat for stews and pot pies be carefully trimmed of all excess fat?

A. Too much fat on the meat makes the stew or pot pie greasy and unpalatable.

15. Q. Why should lean tag ends be trimmed from roasts, pot-roasts, and steaks?

A. When left on the meat cut, the tag ends may become unusable as a result of charring and burning during cooking. If the tag ends are cut off as fresh lean trimmings they may be used for stews or ground meat dishes.

16. Q. How should frozen meat be thawed?

A. (1) It should be thawed at a temperature of 35° to 45° F. (2) If faster thawing is necessary the meat may be thawed at room temperature. Keep the meat loosely covered during the thawing process.

17. Q. In boning and cutting meat, why is the smaller piece removed from the larger one?

A. To make the work easier. The large piece acts as an anchor for the boning or cutting process.

18. Q. Should all blood clots, bruises, dry surfaces, tough membranes, etc., be removed from the meat before cooking?

A. Yes.

Section 3

Beef

(a) General

1. Q. Which will yield the greatest number of pounds of boneless meat, a 150-pound hindquarter or a 150-pound forequarter?

A. The 150-pound forequarter will yield from 5 to 10 pounds more boneless meat than the 150-pound hindquarter. The following figures show the comparative percentages of boneless meat, fat, and bone in forequarters and hindquarters of Navy beef.

Item	*Forequarters*	*Hindquarters*
Boneless meat	70–75%	65–70%
Trimmable fat	2– 8	10–20
Bone and waste trimmings	16–22	13–19

2. Q. How many ribs in a side of beef?

A. Thirteen.

3. Q. Are the following bones in the hindquarter or forequarter or in both?

A. *Name of bone*	*Hind-quarter*	*Fore-quarter*
Arm bone		x
Kneecap	x	
Leg (round) bone	x	
Pelvic (rump and hip) bone	x	
Finger bones	x	
Backbone	x	x
Bladebone		x
Sacral vertebrae	x	
Chine bone	x	x
Lumbar vertebrae	x	
Breastbone		x
Hock bones	x	
Feather or spine bones	x	x
Shank bone	x	x

4. Q. Why are some muscles less tender than others?

A. Because they have more connective tissue and coarser meat fibers. Muscles of locomotion, which received a lot of exercise in the live animal, are usually less tender than the supporting muscles, which received little exercise.

5. Q. Name the tender boneless cuts in a side of beef which are most satisfactory for roasts or steaks.

A. (1) Tenderloin. (2) Loin strip. (3) Sirloin-rump butt. (4) Knuckle (tip). (5) Inside (top) round. (6) Boneless rib. (7) Inside chuck.

6. Q. Name the blocky, less-tender boneless cuts in a side of beef, which may be roasted when necessary, but which are most satisfactory when cooked with moist heat.

A. (1) Outside (bottom) round. (2) Shoulder clod. (3) Chuck tender. (4) Boneless neck.

7. Q. Name the cuts which are packed for roasting and frying in Navy frozen boneless beef.

A. (1) Scotch roll (part of boneless neck). (2) Spencer roll (boneless rib and inside chuck). (3) Loin strip. (4) Tenderloin. (5) Knuckle

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(tip). (6) Rump butt. (7) Inside (top) round. (8) Sirloin butt. (9) Outside (bottom) round—when necessary to get weight desired.

8. Q. How many pounds of boneless meat are packed into each box of frozen boneless beef?

A. Approximately 50 pounds.

9. Q. How many pounds of boneless beef should be issued to equal 100 pounds of carcass beef?

A. 70 pounds.

10. Q. How should beef bones be used?

A. Sawed into pieces and used to make stock (for soups, gravies, stews, loaves, croquettes, etc.).

11. Q. Name three ways to use surplus raw beef fat.

A. (1) Render and use for cooking purposes. (2) Slice and lay on lean roasts for added flavor and protection. (3) Mix with lean meat and grind for loaves, patties, etc. (4) Grind or chop and use for suet pudding.

(b) Hindquarter

1. Q. Name the primal (wholesale) cuts in a beef hindquarter.

A. (1) Round. (2) Sirloin (loin end). (3) Short loin. (4) Flank Steak. (5) Flank. (6) Kidney.

2. Q. The hindquarter is approximately what percent of the side of beef?

A. 49 percent.

3. Q. What is the approximate percentage yield of boneless meat in a beef hindquarter?

A. 65 to 70 percent.

4. Q. How many pounds of boneless meat may be expected from a 180-pound beef hindquarter?

A. 115 to 125 pounds.

5. Q. Name the bones in the beef hindquarter.

A. (1) 13th rib. (2) Part of backbone. (3) Tail bone. (4) Pelvic (rump and hip) bone. (5) Leg (round) bone. (6) Kneecap. (7) Hind shank bone. (8) Hock bones.

6. Q. Name the tender boneless cuts from the beef hindquarter.

A. (1) Tenderloin. (2) Loin strip. (3) Sirloin-rump butt. (4) Knuckle (tip). (5) Inside (top) round.

7. Q. Name the less-tender boneless cuts from the beef hindquarter.

A. (1) Outside (bottom) round. (2) Heel. (3) Flank. (4) Shank meat. (5) Hanging tender. (6) Trimmings.

8. Q. Why is the flank removed before taking out the loin fat and kidney knob?

A. With the flank removed the loin fat and kidney knob may easily be taken out in one piece.

9. Q. How is the kidney most easily removed from the kidney knob?

A. Split the kidney knob on the side which was next to the tenderloin, scoring the membrane which surrounds the kidney. Break the fat and the membrane away from the kidney. Lift the kidney and cut the cord on the under side.

10. Q. Name three ways to use the kidneys which are obtained from beef hindquarters.

A. (1) Stews. (2) Meat pies. (3) Ground meat dishes. (4) Gravies. (5) Dressings and stuffings.

11. Q. What are the steps in trimming the flank?

A. (1) Cut a thin strip from the navel side of the flank. (2) Pull the membrane from the inside of the flank. (3) Remove the rib bone (if this was not done at time flank was separated from hindquarter). (4) Pull the flank steak with meat attached as far as it will pull easily. (5) Cut across the flank to separate the meat from the fat.

12. Q. What bone is in the flank?

A. Part of the 13th rib.

13. Q. What are the steps in removing the sirloin-rump butt?

A. (1) Loosen meat from around end of hip bone. (2) Cut meat free from aitch (rump) bone. (3) Remove pelvic (rump and hip) bone. (4) Cut through meat to leg bone. (5) Cut around end of leg bone to finish separating sirloin-rump butt from round.

14. Q. What bones are in the Navy style beef round?

A. (1) Leg (round) bone. (2) Kneecap. (3) Hind shank bone. (4) Hock bones.

15. Q. Which is more tender, the inside (top) round or the outside (bottom) round?

A. Inside (top) round.

16. Q. When seamed out Navy style, which is heavier, the inside (top) round or the outside (bottom) round?

A. The inside (top) round.

17. Q. When starting to bone a beef shank on the block which side should be up?

A. The bone side, or the inside where the edge of the shank bone is visible.

18. Q. What is the first step in removing the short loin?

A. Loosen butt end of tenderloin.

19. Q. What are the names of the boneless cuts from the short loin?

A. Beef tenderloin and loin strip.

20. Q. What bones are removed in making the sirloin-rump butt?

A. (1) Pelvic (rump and hip) bone. (2) Part of the backbone.

21. Q. What bones are removed in making the loin strip?

A. (1) Part of the 13th rib. (2) Part of the backbone.

(c) Forequarter

1. Q. Name the primal (wholesale) cuts in a beef forequarter.

A. (1) Regular chuck. (2) Rib. (3) Short Plate. (4) Brisket. (5) Fore shank.

2. Q. The forequarter is approximately what percent of the side of beef?

A. 51 percent.

3. Q. What is the approximate percentage yield of boneless meat in a beef forequarter?

A. 70 to 75 percent.

4. Q. How many pounds of boneless meat may be expected from a 200-pound beef forequarter?

A. 140 to 150 pounds.

5. Q. Name the bones in the beef forequarter.

A. (1) 12 ribs (1st to 12th, inclusive). (2) Part of backbone. (3) Neck bone. (4) Breastbone. (5) Rib cartilages. (6) Bladebone. (7) Bladebone cartilage. (8) Arm bone. (9) Foreshank bones.

6. Q. Name the tender boneless cuts from the beef forequarter.

A. (1) Boneless rib. (2) Inside chuck.

7. Q. Name the less tender boneless cuts from the beef forequarter.

A. (1) Shoulder clod. (2) Boneless neck. (3) Chuck tender. (4) Boneless plate. (5) Boneless brisket. (6) Skirt. (7) Rib fingers. (8) Shank meat. (9) Forearm meat. (10) Trimmings.

8. Q. Name the first bone to be removed when boning a forequarter.

A. The atlas (first neck vertebrae).

9. Q. What is the backstrap in the beef forequarter?

A. The backstrap is a long piece of yellow elastic connective tissue. One end is fan-shaped and is attached to the neck bone. The other end tapers and gradually disappears at a point near the 13th rib.

10. Q. When is the backstrap removed?

A. After the ends of the feather bones have been removed.

11. Q. What is the first step in making cuts from the outside chuck?

A. Mark forequarter by inserting boning knife between 5th and 6th ribs.

12. Q. What are the steps in removing the arm-shank?

A. (1) Cut across clod and over socket joint. (2) Cut through seam between arm-shank and brisket. (3) Cut through socket joint and remove arm-shank.

13. Q. Why is the beef rib cut short and the plate wide?

A. To separate the thin less-tender plate meat from the thick tender rib meat.

14. Q. Why is the boneless meat from the plate, brisket, rib, and inside chuck lifted from the rib bones, leaving the rib fingers attached to the bones?

A. (1) Lifting the meat from the rib bones, without the rib fingers, is easier and faster. (2) This method eliminates needless scoring of heavy muscles. (3) The rib fingers can be used to better advantage when removed separately.

15. Q. Why should the rib fingers be used as lean trimmings instead of being left attached to the roast or pot-roast?

A. (1) Small pieces of meat such as rib fingers are more satisfactory when used fresh in stews and ground meat dishes. (2) In carving the cooked meat the rib fingers break loose and can be served only as tag ends.

16. Q. The shape of the chuck tender resembles what boneless cut from the hindquarter?

A. The beef tenderloin.

17. Q. In removing the arm-shank what is the advantage of leaving the shank bone attached to the arm bone?

A. (1) The shank bone provides a leverage which can be used to advantage in unjointing the arm and blade-bone. (2) The meat can be removed without taking the time and trouble to separate the bones.

18. Q. What beef forequarter cuts lie on each side of the ridge of the bladebone?

A. (1) shoulder clod. (2) Chuck tender.

19. Q. Which is more tender, the shoulder clod or the inside chuck?

A. Inside chuck.

Section 4

Lamb

1. Q. Give two reasons why a lamb carcass is not split down the center of the backbone when being cut Navy style.

A. (1) The various cuts can be boned out just as quickly without taking time to split the carcass. (2) More desirable chops can be made from the loin and rack when the carcass is not split.

2. Q. What does the break joint in a lamb carcass indicate?

A. The break joint is an indication of youth. It means that the carcass is lamb. A mutton carcass shows a spool joint.

3. Q. Describe the lamb break joint.

A. (1) It is "waffle-like" or "saw-like" in appearance. (2) The break joint in the lower fore shank has eight well defined ridges. The break joint in the hind shank has four ridges.

4. Q. What is the lamb fell?

A. The thin papery membrane which covers the lamb carcass.

5. Q. Is it necessary to remove the fell from lamb cuts which are to be roasted?

A. No. The fell should be left on for the following reasons: (1) It holds the juices in the meat. (2) It helps the roast retain its shape. (3) The cooked meat is more attractive. (4) The roast cooks in less time.

6. Q. What is a hind saddle of lamb?

A. Two unsplit lamb hindquarters.

7. Q. What is a long saddle of lamb?

A. A hind saddle of lamb with the rack attached to it.

8. Q. What cuts are found in the long saddle of lamb?

A. (1) Legs. (2) Loin. (3) Rack.

9. Q. Name two ways of utilizing the long lamb saddle.

A. (1) Roasts, boneless. (2) Chops, bone in.

10. Q. What is a foresaddle of lamb?

A. Two unsplit lamb forequarters.

11. Q. What is a lamb triangle?

A. A foresaddle of lamb with rack removed.

12. Q. What cuts are found in the lamb triangle?

A. (1) Shoulders. (2) Breasts. (3) Shanks. (4) Neck.

13. Q. Name two ways of utilizing the lamb triangle.

A. (1) Ground lamb for loaf, patties, chili, etc. (2) Boneless lamb for braising, stewing, meat pie, chop suey, etc. (3) The shoulders may be roasted or used for chops.

14. Q. Name the bones in a lamb leg.

A. (1) Pelvic (aitch and hip) bone. (2) Tail bone and part of backbone. (3) Leg bone. (4) Kneecap. (5) Hind shank bone. (6) Lower hind shank bones.

15. Q. A Navy style lamb leg (long cut) is comparable to what cuts of beef?

A. (1) Round (including rump and shank). (2) Sirloin (loin end).

16. Q. In cutting the lamb carcass (Navy style) is the 13th rib left on the loin?

A. No. The 13th rib is left on the rack.

17. Q. Name the bones in a lamb loin when cut Navy style.

A. Part of backbone.

18. Q. Name the bones in a lamb rack when cut Navy style.

A. (1) Bladebone cartilages. (2) Parts of rib bones (6th to 13, inclusive). (3) Part of unsplit backbone.

19. Q. When making a boneless roll, why are the two pieces of boneless meat from the lamb rack reversed end for end?

A. To make a more uniform roll by placing the thick part (shoulder end) of one piece over the thin part (loin end) of the other.

20. Q. Name the bones in a square cut lamb shoulder.

A. (1) Bladebone. (2) Part of arm bone. (3) Parts of rib bones (1st to 5th, inclusive). (4) Part of backbone. (5) Part of neck bone.

21. Q. What are the two principal differences in boning a lamb shoulder and a beef chuck?

A. (1) In lamb the bones are lifted from the meat. In beef the meat is lifted from the bones. (2) In lamb the boneless meat is left in one piece (unless cut up for stew). In beef the muscles are seamed out to be cooked in several pieces.

22. Q. Name the bones in a lamb neck.

A. Part of neck bone.

23. Q. Name the bones in a lamb breast.

A. (1) Parts of rib bones. (2) Rib cartilages. (3) Breastbone.

24. Q. Name the bones in a lamb shank.

A. (1) Lower foreshank bones. (2) Foreshank bones (includes elbow bone). (3) Part of arm bone.

25. Q. When 60 pounds of carcass lamb have been issued for 100 men, and roast lamb is on the menu, how should the carcass be cut?

A. Make boneless rolls from the legs, loin, rack, and shoulders. Bone and grind the meat from the neck, shanks, and breasts. Use the ground lamb for loaves and roast (bake) the loaves along with the boneless rolls.

26. Q. What cuts of lamb may be made into lamb chops?

A. (1) Legs. (2) Loin. (3) Rack. (4) Shoulders.

27. Q. Approximately what percent of the lamb carcass can be cut into trimmed chops (bone-in)?

A. About 50 to 60 percent.

28. Q. When lamb chops are on the menu and carcass lamb is issued, how can the breasts, shanks, and neck be served with the chops?

A. Remove the bones, grind the meat, and shape the ground meat into patties. Cook and serve the patties with the chops.

29. Q. When lamb is being cut for stew why should most of the fat be trimmed off?

A. Too much fat makes the stew less desirable in appearance and palatability.

Section 5

Pork

1. Q. Which does the Navy buy, carcass pork or primal (wholesale) cuts?

A. Wholesale cuts.

2. Q. Name the primal (wholesale) cuts of fresh pork.

A. (1) Ham (leg). (2) Loin. (3) Side (belly). (4) Spare ribs. (5) Shoulder (Boston butt and picnic). (6) Neck bones. (7) Jowl. (8) Feet. (9) Fat back.

3. Q. What percentage of the pork carcass is generally sold as fresh pork?

A. About 30 percent, although this figure varies according to the demand for fresh pork and for cured and smoked pork.

4. Q. What are the most common types of hams?

A. (1) Fresh Hams: a. Regular; b. Skinned; c. Boneless. (2) Cured and Smoked Hams: a. Commercial, regular; b. Commercial, skinned; c. Commercial, boneless; d. Overseas, regular; e. Overseas, skinned.

5. Q. What are the steps in cutting a large fresh ham into three boneless roasts?

A. (1) Remove the aitch bone. (2) Take off the skin. (3) Remove the shank bones at the stifle joint. Leave all of the shank meat attached to the cushion section of the ham. (4) Remove the knuckle meat (roast number one). (5) Remove the inside muscle and wrap it with a thin layer of fat from the outside of the ham (roast number two). (6) Remove the leg bone and kneecap. (7) Tie the shank meat into place on the outside muscle (roast number three).

6. Q. What percent of a regular fresh ham is used for boneless roasts?

A. 70 to 80 percent.

7. Q. Name the bones in a ham (leg).

A. (1) Aitch bone. (2) Leg bone. (3) Kneecap. (4) Hind shank bones.

8. Q. How may a small or medium size uncooked fresh or smoked ham be cut into slices without using a saw?

A. Remove the shank and the outside skin. Take out the aitch and leg bones, then split the boneless ham into two pieces (knuckle and cushion). Cut the boneless pieces into slices.

9. Q. How may a large uncooked fresh or smoked ham be cut into slices without using a saw?

A. Remove the shank and the outside skin and bones. Split the boneless ham into three pieces (knuckle, inside, and outside). Cut the boneless pieces into slices.

10. Q. How can the excess fat and skin from smoked ham be used?

A. (1) The fat may be rendered and used as a cooking fat. (2) The skin and fat may be used to grease baking pans and griddles. (3) The skin may be used for seasoning.

11. Q. Why should the shank be removed from the smoked ham before cooking?

A. (1) Because the shank meat cannot be carved into attractive servings. (2) Because the uncooked shank makes an excellent seasoning piece.

12. Q. What cutting should be done on a smoked (commercial) ham to get it ready for baking?

A. (1) Remove the aitch bone. (2) Remove the shank leaving all of cushion meat on ham. (3) Remove the skin and excess fat. (4) Remove the leg bone.

13. Q. How does an overseas ham differ from a commercial ham?

A. (1) It is given a longer cure. (2) It has a higher salt concentration. (3) It receives a heavier smoke. (4) It may be shankless.

14. Q. What are the most common wholesale cuts from the pork loin?

A. (1) Regular loin. (2) Bladeless loin. (3) Semiboneless loin. (4) Boneless loin. (5) Tenderloin. (6) Backbones. (7) Canadian style bacon. (8) Back (loin) ribs.

15. Q. What bones are in a regular pork loin?

A. (1) Part of bladebone. (2) Bladebone cartilage. (3) Parts of rib bones. (4) Backbone. (5) Hip bone.

16. Q. What are the objections to the use of a cleaver in cutting pork chops?

A. (1) The chops are likely to be full of bone splinters. (2) They will not be uniform in thickness.

17. Q. How can pork chops be cut without using a cleaver?

A. (1) Use a saw instead of a cleaver. (2) Remove the bones and cut the loin strip into boneless chops.

18. Q. What are the steps in making a boneless pork loin roast?

A. (1) Strip out the tenderloin. (2) Lift off the bladebone and cartilage. (3) Loosen the feather bones along the full length of the loin. (4) Cut through the slip joint and remove the hip bone. (5) Remove the loin strip from the ribs and backbone. (6) Cut the loin strip into two pieces of equal length. (7) Lay the two pieces together, fat sides out and the thick ends reversed. Tie the two pieces together.

19. Q. How many pounds of semiboneless pork loins should be issued to equal 100 pounds of regular pork loins?

A. 90 pounds.

20. Q. What common wholesale cuts (fresh and cured and smoked) are made from the pork shoulder?

A. *Fresh Cuts:* (1) Skinned shoulder; (2) Fresh picnic; (3) Boston butt; (4) Fresh hock. *Cured and Smoked Cuts:* (1) Smoked shoulder butt; (2) Smoked picnic; (3) Smoked hock.

21. Q. What percent of the skinned pork shoulder is used for boneless roasts?

A. 75 to 85 percent.

22. Q. Name the bones in a fresh picnic.

A. (1) Part of the bladebone. (2) Arm bone. (3) Foreshank bones.

23. Q. What is a fresh picnic?

A. It is the shank (lower) half of the pork shoulder. It includes the shank and the arm sections.

24. Q. What is the Boston butt and what bone is in it?

A. It is the blade (top) half of the pork shoulder. It contains a portion of the bladebone.

25. Q. Name two pork cuts which are used for dry salt pork.

A. (1) Side (belly). (2) Fat back.

26. Q. Give three reasons why pork is valuable in the Navy mess.

A. (1) It has a high fat content which makes it an excellent energy food. (2) It is an outstanding source of thiamine (vitamin B_1). (3) It is a universally liked meat. (4) It adds variety to the menu. (5) Pork fat contributes essential unsaturated fatty acids to the diet.

27. Q. Is it true that pork is "hard to digest"?

A. No. Pork has a higher fat content than the other meats, which causes it to digest a little more slowly. In common with other meats pork is 97 percent digestible.

Section 6

Veal

1. Q. Does veal have the same bone structure as beef? Why?

A. Yes. Veal is immature beef.

2. Q. How many ribs in a side of veal?

A. Thirteen.

3. Q. Why is veal more perishable than beef?

A. The covering of fat on veal is too thin to protect it for any extended period at temperatures above freezing.

4. Q. Does veal have as much fat as beef?

A. No. Even veal of top quality has a very light fat covering and shows no marbling.

5. Q. In percent, how much boneless meat may be expected from a veal carcass?

A. 65 to 70 percent.

6. Q. Is the lean of veal the same color as the lean of beef?

A. No. The lean of veal is a faint red or pink color. The lean of beef is a deeper, brighter red.

7. Q. Why is it especially necessary to have a sharp knife when cutting veal?

A. Veal lacks firmness. A sharp knife is necessary to avoid making jagged uneven cuts.

8. Q. Are all cuts of veal desirable for roasting?

A. No. The neck, shank, breast, and flank are more desirable when boned out and used in a stew, veal pie, or as ground veal.

9. Q. Is the same style of cutting used in boning heavy veal and light veal?

A. No.

10. Q. How should extremely heavy veal be boned?

A. Similar to beef. The various muscles or cuts will be nearly the same size as those from light beef.

11. Q. How should extremely light veal be boned?

A. Similar to lamb, with modifications to take care of sides rather than unsplit carcasses.

12. Q. What is a hind saddle of veal?

A. Two unsplit veal hindquarters.

13. Q. In cutting the veal hindquarter for boneless roasts or boneless cutlets, how is the leg separated from the loin and rump?

A. Cut through meat close to rump bone. Continue in straight line through knuckle meat of leg. Unjoint leg bone at socket joint. Cut around end of leg bone to separate leg from loin.

14. Q. What boneless roasts are made from the heavy leg of veal?

A. (1) Knuckle (tip). (2) Inside (top) leg. (3) Outside (bottom) leg.

15. Q. Should one roast or two roasts be made from the light leg of veal?

A. The average light leg should be made into two boneless roasts. The very small leg can be made into one boneless roast.

16. Q. What boneless veal cuts are made from the full loin and rump?

A. (1) Tenderloin. (2) Sirloin-rump. (3) Loin strip.

17. Q. Why should the loin strip and tenderloin be combined to make one boneless roast?

A. Because in veal of average weight neither section is large enough to make a desirable roast by itself.

18. Q. What is a foresaddle of veal?

A. Two unsplit veal forequarters.

19. Q. What boneless roasts are made from a veal forequarter?

A. (1) Outside shoulder. (2) Boneless rib. (3) Boneless inside shoulder and neck.

20. Q. What are the steps in boning the outside shoulder of veal?

A. (1) Remove and bone the foreshank. (2) Loosen thin meat to expose arm and blade bones and cut with point of knife along both sides of these bones. (3) Take out arm bone after cutting through ball and socket joint. (4) Remove blade-bone.

21. Q. Give two reasons why the back strap should be removed from the veal forequarter.

A. (1) It is tough and cooking will not make it tender. (2) It interferes with cutting uniform slices from the boneless rib and shoulder. (3) It interferes with carving the cooked veal roasts.

22. Q. What cuts of veal are most desirable for chops and cutlets?

A. (1) Leg. (2) Loin. (3) Rib. (4) Shoulder.

23. Q. When veal cutlets are on the menu and carcass veal is issued, how may the flanks, breasts, shanks, and neck be used?

A. Remove the bones, grind the meat and shape the ground veal into patties. Cook and serve the patties with the cutlets.

24. Q. How may cutlets be made from the thin end of a boneless cut of veal?

A. (1) By cutting "butterfly" or double slices. (2) By "Frenching" or flattening the end cuts with a cleaver.

Section 7

Meat Cookery

1. Q. Give two reasons for cooking meat.

A. (1) To make it more palatable. (2) To develop its flavor. (3) To make it more tender. (4) To improve its appearance.

2. Q. Name the two general principles of meat cookery.

A. (1) Dry heat. (2) Moist heat.

3. Q. Name three methods of cooking meat by dry heat.

A. (1) Roasting. (2) Broiling. (3) Griddle-broiling. (4) Frying (includes griddle-frying and deep-fat frying).

4. Q. What are the two methods of cooking meat by moist heat?

A. (1) Braising. (2) Simmering or cooking in water (includes stewing).

5. Q. Define roasting.

A. Cooking in an oven, in an open pan, without added liquid.

6. Q. Define broiling.

A. Cooking by direct heat, over coals, or under a gas flame or electric unit.

7. Q. Define griddle-broiling.

A. Cooking on a griddle. The fat should be scraped away as it accumulates.

8. Q. Define frying.

A. Cooking in fat.

9. Q. Define griddle-frying.

A. Cooking on a griddle in a small amount of fat.

10. Q. Define deep-fat frying.

A. Cooking in enough fat to submerge the food.

11. Q. Define braising.

A. Browning meat in a small amount of fat, then cooking slowly in a covered utensil in its own juices or in a small amount of added liquid (meat stock, water, or milk).

12. Q. What is a fricassee?

A. Meat cut into small pieces and braised.

13. Q. Define simmering (cooking in water).

A. Covering meat with water and cooking it at a simmering temperature in a covered container. At this temperature bubbles form slowly and break below the surface.

14. Q. Define stewing.

A. Covering small pieces of meat with water and cooking them at a simmering temperature in a covered container (same as cooking in water except meat is cut into small pieces).

15. Q. Define marinate.

A. To allow meat to stand in a marinade (acid liquid, with oil or seasoning or both) before cooking.

16. Q. What is bouillon?

A. A liquid prepared by simmering beef (or other meat), which is seasoned and freed from fat and other solid particles.

17. Q. Define steaming.

A. Cooking in steam with or without pressure.

18. Q. Name two steps in roasting meat which indicate the dry heat principle of meat cookery.

A. (1) Do not add water. (2) Do not cover.

19. Q. Why is a roast placed in the pan fat side up?

A. (1) To prevent evaporation by protecting the outside of the roast during cooking. (2) So the melting fat can baste the roast during cooking.

20. Q. When a roast is salted before cooking, how far does the salt penetrate into the meat?

A. About one-half inch.

21. Q. Does salting a roast before cooking draw out some of the meat juices.

A. Yes, but the amount is small, and goes into the drippings to make gravy.

22. Q. Name three factors which influence the time required to cook a roast.

A. (1) Oven temperature. (2) Weight of the roast. (3) Shape of the roast. (4) Desired degree of doneness. (5) Whether meat is fresh chilled or frozen. (6) Proportion of fat, lean, and bone.

23. Q. Give four advantages of roasting meat at a low oven temperature.

A. (1) More tender roast. (2) More servings. (3) Uniformly cooked portions. (4) Juicier and better flavored roast. (5) Meat drippings which are not burned. (6) Less drying and overcooking of exterior surface. (7) Less shrinkage. (8) Less fuel consumed. (9) Less work in keeping oven and pans clean. (10) A cooler galley in which to work.

24. Q. Do beef roasts cooked at a low temperature require a longer cooking time than similar roasts cooked at a high temperature?

A. Yes. For example, two 6-pound beef roasts were cooked to "medium done." One was cooked at 325° F. and the other at 500° F. The roast in the 325° F. oven required about one hour longer to reach the "medium done" stage.

25. Q. In percent how many more servings can be expected from roasts cooked at 325° F. than from an equal weight of meat cooked at 500° F.?

A. 15 to 20 percent. Low temperatures save meat.

26. Q. Why should all the roasts for one meal be about the same size?

A. So they will cook in about the same length of time. If the roasts are not uniform in size, the larger ones should be put in to cook first.

27. Q. Do roasts started in a cold oven require a longer cooking time than roasts started in a preheated oven?

A. Yes. About two minutes per pound.

28. Q. Approximately how many minutes per lb. are required to cook a 6-lb. boneless roast until it is "medium" done at an oven temperature of 325° F.?

A. 30 to 35 minutes per pound.

29. Q. Is it necessary to thaw frozen boneless beef roasts before cooking?

A. No. However, the meat should be cooked at a constant low oven temperature (not over 325° F.). Whether meat is put in to cook while frozen or when thawed makes little difference in the shrinkage (final weight of the cooked meat), or in its tenderness, juiciness, or palatability.

30. Q. How much additional time should be allowed for roasting frozen beef as compared to thawed beef?

A. Two hours or more, if cooked at a low oven temperature (325° F.). The cooking time will vary, depending upon the size of the roasts and the amount of frozen meat in the oven.

31. Q. Should beef be served rare, medium, or well done?

A. Beef may be served rare, medium, or well done, depending upon the preference of the individual. When cooked rare or medium it will provide more, or larger, servings than when cooked well done.

32. Q. When is a pork roast said to be well done?

A. When it has an even gray color without any tinge of pink.

33. Q. What are two reasons for cooking fresh pork well done?

A. (1) To develop fully the richness of its flavor. (2) To safeguard against the possibility of trichinosis.

34. Q. As a general rule, are higher temperatures needed for roasting meat than for baking pies, cakes, or biscuits?

A. No. The oven temperature for roasting meat should be about 325° F. For most kinds of baking the oven temperatures range from 350° to 450° F.

35. Q. Why may a meat loaf made from less-tender meat cuts be cooked satisfactorily by roasting (baking)?

A. The less-tender meat was made tender by grinding, consequently, it may be cooked by dry heat (roasting).

36. Q. Why is fresh pork often combined with other meats in making meat loaves?

A. (1) The fat in the pork makes the loaf juicier and better flavored. (2) The pork helps to hold the ground meat together.

37. Q. What is the most important thing to consider about steaks which are to be cooked by griddle-broiling?

A. The steaks must be tender.

38. Q. Why are lamb shoulder chops suitable for griddle-broiling?

A. (1) They are sufficiently tender for this method of cooking. (2) They make a desirable product when cooked this way.

39. Q. How may steaks from the outside (bottom) round be made tender enough for griddle-broiling?

A. They may be made tender through the use of a cubing machine, delicator, or other tenderizing device.

40. Q. How does griddle-frying differ from griddle-broiling?

A. (1) In griddle-broiling the meat is placed on an ungreased griddle, while in griddle-frying a small amount of fat is put on the griddle. (2) In griddle-broiling the fat which cooks out of the meat is scraped away as it accumulates. In griddle-frying the meat actually cooks in a small amount of fat.

41. Q. Should veal cutlets for breading be cut thick, medium, or thin?

A. Thin.

42. Q. What are the steps in griddle-frying breaded veal cutlets?

A. (1) Dredge cutlets in flour which has been seasoned with salt and pepper. (2) Dip in egg batter. (3) Roll in bread or cracker crumbs (shake off loose crumbs). (4) Brown quickly on both sides in small amount of fat. (5) Turn occasionally. (6) Cook at moderate temperature until done.

43. Q. What is the main disadvantage of cooking pork chops by griddle-broiling, griddle-frying, and deep-fat frying?

A. By the time the chops are well done they are hard and dry and have lost their flavor.

44. Q. Why is braising considered the best method of cooking pork chops?

A. (1) Braising develops the full rich flavor of pork. (2) The chops can be cooked long enough to become well done without becoming dry and hard.

45. Q. Give two reasons why "braising" is a moist heat method of meat cookery.

A. (1) A small amount of liquid may be used. (2) The cooking utensil is covered.

46. Q. Can less-tender meat cuts be made tender when cooked with moist heat?

A. Yes. Moist heat cookery softens the connective tissue and makes the meat tender.

47. Q. Can the braising of meat be done as satisfactorily in the oven as on the top of the range?

A. Yes.

48. Q. Why is braising a desirable method of cooking a beef brisket?

A. The beef brisket is a less-tender cut and moist heat cookery (braising) will make it tender.

49. Q. Why are less-tender steaks made tender by braising?

A. Because braising is a method of cooking by moist heat, which softens connective tissue and makes meat tender.

50. Q. What is the main difference between cutting meat for a stew and cutting meat for simmering (cooking in water)?

A. The size of the pieces of meat. For a stew the meat is cut into small pieces. For simmering (cooking in water) the meat is left in large pieces.

51. Q. What are the two general types of stews?

A. (1) Brown stew. (2) Light stew.

52. Q. What is the essential difference between the methods of preparing a brown stew and a light stew?

A. Browning, or not browning, the meat before stewing. In making a brown stew the meat is browned before adding the liquid, whereas the meat is not browned in making a light stew.

53. Q. Name several ways of adding variety to stews.

A. (1) The meat may or may not be browned. (2) Vary the seasonings. (3) Use different combinations of vegetables. (4) Try different accompaniments, such as rice, dumplings, noodles, etc. (5) Serve as a meat pie with different kinds of crusts.

54. Q. Should "stewing and boiling" beef be cooked in boiling water?

A. No. The water should simmer, not boil.

55. Q. Why is it important to maintain a simmering temperature when cooking meat in water?

A. (1) The meat will lose less flavor. (2) There will be less shrinkage. (3) The meat will be tender but not stringy. (4) The muscle fibers will not be toughened. (5) The cooked meat will hold together better during carving.

56. Q. Name two ways to make less-tender cuts tender.

A. (1) Moist heat cookery. (2) Grinding or chopping. (3) Cubing, delicating, or tenderizing with a mechanical device.

57. Q. Why is it unnecessary to soak or precook in water a smoked (commercial) ham before baking?

A. This type of ham has a mild cure (low salt content), therefore, it does not require soaking or parboiling to remove excess salt.

58. Q. Why should the shank be removed before the smoked ham is cooked?

A. (1) The shank is very desirable for seasoning. (2) A shankless ham requires less cooking space. (3) The shank cannot be carved into attractive cross-grain servings; for that reason it is not satisfactory for serving with the rest of the ham.

59. Q. Why is it impractical to attempt to cook a smoked (overseas) ham in one piece?

A. Because not enough salt can be removed. Smoked (overseas) ham, especially one which has been out of cure for several weeks, has a very heavy salt concentration. When it is cooked whole (in one piece) sufficient salt cannot be removed, even by simmering for a long period of time, to make a palatable cooked ham dish.

60. Q. What are two satisfactory methods of cutting and cooking a smoked (overseas) ham?

A. (1) Remove the outside skin and cut the ham into ½-inch (not over 1-inch) slices. Simmer the slices for a short time using two changes of cold water. The slices may then be cooked with scalloped potatoes, smothered in milk, or baked in various ways. (2) Split the ham into three sections—knuckle, inside and outside, or cut ham into 2-inch slices. Simmer the pieces of ham from 3 to 5 hours. Change the water two or three times. Remove the skin and bones before carving.

61. Q. What is meant by larding a piece of meat?

A. Inserting strips of fat through the meat with a larding needle.

62. Q. Why should overcooking of meat be avoided?

A. Overcooking: (1) Wastes meat; (2) Wastes juices and flavor; (3) Wastes food value; and (4) Wastes fuel and time.

63. Q. Name five foods which can be used to extend meat dishes.

A.

Food	*Typical Dishes*
Bread, crackers . . .	Meat loaves, patties, breaded meats.
Dumplings, dough crusts	Stews, pot pies.
Dressings, stuffings .	Roasts, meat birds.
Macaroni, noodles . .	Stews.
Spaghetti	Meat balls, meat sauces.
Rice, barley	Stews, meat balls, stuffed peppers.
Vegetables, ground vegetables	Stews, meat loaves.

64. Q. How long should bones for stock be simmered?

A. A minimum of six hours; and twice that time is preferred by experienced chefs and cooks.

Section 8

Deep-Fat Frying

1. Q. Define deep-fat frying.

A. Cooking in enough fat to submerge the food.

2. Q. What foods are best adapted to frying in deep fat?

A. (1) Croquettes. (2) Fritters. (3) Vegetables (batter covered or breaded). (4) Sea foods (breaded, excepting large whole fish). (5) Chops and cutlets (thin, breaded). (6) Chickens (small, disjointed fryers or precooked steamed fowl. *Never* deep-fat fry large pieces unless precooked). (7) Doughnuts. (8) French fried potatoes. (9) French toast.

3. Q. In the absence of a thermometer how may the temperature of the fat be determined?

A. Bread test. A 1-inch cube of fresh bread will brown in the hot fat as follows: 350° F.—over 1 minute; 360° F.—1 minute; 370° F.—40 seconds.

4. Q. Are there any foods which should be deep-fat fried at temperatures above 375° F.?

A. No. For best results 375° F. is a maximum temperature for deep-fat frying. Many foods should be cooked at a lower temperature.

5. Q. In deep-fat frying, what are two disadvantages of letting the fat become too hot?

A. (1) The outside of the food will be overdone and scorched before the center is cooked. (2) The fat will break down and become useless for frying purposes. (3) The fat will smoke excessively.

6. Q. What happens to foods when too low a temperature is used in deep-fat frying?

A. They become grease-soaked and unappetizing.

7. Q. What happens when too much food is introduced in a pan of hot fat at one time?

A. The temperature of the fat is lowered to a point unsatisfactory for deep-fat frying.

8. Q. What is the disadvantage of using the smoking point as a guide in determining the temperature of deep frying fat?

A. The smoking point is an unreliable guide since it does not indicate the actual temperature of the fat.

9. Q. What are the steps in breading foods to be fried in deep fat?

A. (1) Dredge in flour which has been seasoned with salt and pepper. (2) Dip in egg batter. (3) Roll in dry breading material. (4) Shake off loose particles.

10. Q. Why is it important to strain the fat used in deep-fat frying?

A. (1) To remove all crumbs and other foreign particles which shorten the life of the fat. (2) To prevent the development of undesirable flavors from burnt food particles. (3) So the food being cooked will have a rich brown appearance not marred by burnt particles from previously fried foods.

11. Q. How often should deep frying fat be strained?

A. (1) Always strain fat after each day's frying. (2) Always strain fat after cooking heavily breaded foods such as fish, oysters, onions, cutlets, etc.

12. Q. Can fat be used for other foods after it has once been used for cooking fish or onions?

A. Yes. Strain out the food particles and the fat will be satisfactory for the next food. (Possible exception is when fat fish has been cooked in the fat.)

13. Q. How long can deep frying fat be used?

A. Almost indefinitely when it is handled properly and when sufficient food is cooked in it to assure a 25-percent fat replacement every time it is used.

14. Q. How is it possible to determine when fat is no longer suitable for deep frying?

A. (1) Flavor of the foods cooked in the fat. (2) Odor of the fat.

15. Q. What is the disadvantage of salting food in, or over, the deep-fat frying unit?

A. Salt is not dissolved by the frying fat and becomes just another foreign particle to be removed.

16. Q. Why should food, which is to be fried in deep fat, have as dry a surface as possible?

A. (1) To reduce spattering and bubbling. (2) To shorten the period required to brown and cook the food.

17. Q. Should croquettes, or any other food, be fried a long time in advance of their serving?

A. No. Fried foods are most palatable when served hot immediately after cooking.

18. Q. Where should fat be stored when not in use?

A. In a covered container in the refrigerator.

19. Q. Should deep-fat frying equipment which comes in contact with the hot fat contain brass or copper?

A. No. Brass and copper shorten the "life" of the fat.

20. Q. Why is it necessary to be sure that all soaps and cleaning compounds are removed from the frying kettle after cleaning?

A. (1) The alkali in soap and cleaning compounds combine with fat to form soap. (2) Soap causes the fat to foam and might result in a serious fire. (3) Soap speeds the break-down of frying fat. (4) Soap imparts an undesirable flavor to fried foods.

Section 9

Carving and Serving Meat

1. Q. Why should roasts and pot-roasts be carved across the grain?

A. To shorten the muscle fibers, thereby making the meat slices more tender.

2. Q. What is the advantage of carving with a thin, sharp knife?

A. A thin, sharp knife (like the roast slicer) slices through the cooked meat more readily than a thicker steak or cook's knife.

3. Q. Should a roast be carved immediately after it is taken from the oven?

A. (1) If the roast is well done it may be carved immediately. (2) A rare or medium roast should be allowed to "set" for about 30 minutes in order to become firm enough to carve well. Keep the roast warm during this period.

4. Q. What is the disadvantage of carving meat on a metal surface?

A. A metal surface quickly turns the cutting edge of the knife blade. Carving should be done on a wooden surface.

5. Q. How should the meat be held while carving?

A. Hold the meat firmly with a large fork.

6. Q. When should the string on boneless roasts be removed?

A. (1) Remove all strings before carving when using a slicing machine. (2) Remove strings as you come to them when carving by hand.

7. Q. Can more than one roast be placed on the slicing machine at one time?

A. Yes. As many as the carriage will accommodate.

8. Q. How does correct carving influence the appearance of the slices?

A. (1) Provides slices which are uniform in thickness. (2) Makes slices which are attractive in appearance.

9. Q. What are the advantages of boneless roasts for carving?

A. (1) Carving can be done faster. (2) There will be a greater number of servings. (3) Servings will be more uniform in size. (4) Slices will be more attractive in appearance. (5) Boneless roasts may be sliced on a slicing machine.

10. Q. Why is it important to keep the sliced cooked meat hot until served?

A. Meat is more appetizing when served hot than when served luke-warm.

11. Q. Describe how carved roasts should be placed on platters for table service.

A. When possible the slices should be put back together in the shape of the original roast. This keeps the slices from drying out.

12. Q. When should hot meat dishes be placed on the mess tables?

A. Just before the men are seated.

13. Q. What is an attractive way to serve liver and bacon?

A. Instead of placing all the bacon in a separate dish, lay a few strips over the liver or place the liver in the center of the platter and make a stack of bacon slices on each side.

14. Q. Should cooked meat be kept in a steam table as long as 3 or 4 hours?

A. No. Cooked meat should be placed in the steam table only a few minutes before serving time.

15. Q. In serving cafeteria style, how should food be served to help prevent waste?

A. (1) Serve moderate size portions (make every effort to correlate the size of the servings with the amount of each food the men are actually eating). (2) Serve hot food hot and cold food cold. (3) Serve food carefully—a tray of well arranged food has appetite appeal. (4) When necessary serve vegetables with a perforated spoon to drain off the liquid. (5) Start serving from the end of the pan. Don't scoop out of the middle, since this exposes more surface to dry out.

Section 10

Nutrition

1. Q. What is an adequate diet?

A. One which supplies enough of all of the nutritive elements for: (1) Growth and repair of the body. (2) Maintenance of a healthy body. (3) Production of heat energy.

2. Q. What are three functions of food?

A. (1) Furnish heat and energy. (2) Build and repair the body. (3) Regulate body processes.

3. Q. What food essentials are necessary in the diet?

A. (1) Protein. (2) Carbohydrates. (3) Fats. (4) Minerals (Calcium, phosphorus, iron, trace elements). (5) Vitamins (A, B Complex, C, D, etc.).

4. Q. Is it necessary for every meal to include all of the food essentials of an adequate diet? Why?

A. No. Because the missing food essentials can be included in other meals during the day.

5. Q. Why is protein necessary in the diet?

A. (1) To build and repair the proteins of muscles, blood, and other tissues. It also furnishes heat and energy.

6. Q. Which are superior, the proteins of animal foods or the proteins of vegetable foods?

A. The proteins of animal foods.

7. Q. Name five foods which are high in protein.

A. (1) Meat. (2) Variety (organ) meats. (3) Fowl. (4) Fish. (5) Cheese. (6) Beans and peas. (7) Eggs. (8) Nuts. (9) Milk. (10) Cereals.

8. Q. What are calories?

A. Calories are heat units which are used in measuring the heat and energy value of foods.

9. What are the carbohydrates?

A. (1) Sugars. (2) Starches.

10. Q. Why are carbohydrates necessary in the diet?

A. They furnish heat and energy.

11. Q. Name five foods which are important sources of carbohydrates.

A. (1) Sugars. (2) Syrups. (3) Molasses. (4) Flour and flour products. (5) Breads. (6) Crackers. (7) Cereals. (8) Potatoes and other starchy vegetables.

12. Q. Name two common sources of sugar.

A. (1) Sugars. (2) Syrups. (3) Molasses.

13. Q. Name three sources of starch.

A. (1) Flour and flour products. (2) Breads. (3) Crackers. (4) Cereals. (5) Potatoes and other starchy vegetables.

14. Q. What do fats contribute to the diet?

A. (1) All fats are concentrated sources of heat and energy. (2) Some fats supply vitamins. (3) Some fats furnish essential unsaturated fatty acids.

15. Q. Name five foods which furnish fat for body fuel.

A. (1) Butter. (2) Lard and lard substitutes. (3) Oleomargarine. (4) Meat fats. (5) Oil. (6) Cream. (7) Nuts. (8) Cheese.

16. Q. What minerals are necessary in the diet, along with vitamin D, for strong bones and sound teeth?

A. (1) Calcium. (2) Phosphorus.

17. Q. Name three foods which are good sources of calcium.

A. (1) Milk. (2) Cheese. (3) Vegetables, green. (4) Whole grain cereals or breads.

18. Q. Name five foods which are good sources of phosphorus.

A. (1) Variety (organ) meats. (2) Meat. (3) Fowl. (4) Fish. (5) Milk. (6) Cheese. (7) Beans and peas. (8) Eggs.

19. Q. Why do we eat foods which are rich in iron?

A. Iron, with copper, builds rich, red blood.

20. Q. What food is the best known source of iron?

A. Liver.

21. Q. Does beef liver have more iron per serving than other livers?

A. No. Pork liver has the most.

22. Q. Name four other food sources of iron besides variety (organ) meats.

A. (1) Meat. (2) Fowl. (3) Oysters. (4) Eggs. (5) Vegetables, green. (6) Dried fruits. (7) Whole grain cereals. (8) Whole wheat or enriched bread.

23. Q. Name some of the minerals furnished by meat.

A. (1) Phosphorus. (2) Iron. (3) Copper.

24. Q. What minerals are most likely to be lacking in the diet?

A. (1) Calcium. (2) Phosphorus. (3) Iron.

25. Q. Why is it important to eat foods which supply vitamins?

A. Because vitamins promote growth and are necessary to keep the body healthy.

26. Q. Name five of the more commonly known vitamins.

A. (1) Vitamin A. (2) Thiamine (B_1). (3) Riboflavin (B_2). (4) Niacin (Nicotinic acid). (5) Vitamin C. (6) Vitamin D. (7) Vitamin E. (8) Vitamin K.

27. Q. With which of the senses (touch, taste, sight, smell, sound) is vitamin A most commonly associated?

A. With sight. Vitamin A is necessary to normal functioning of the eyes and the prevention of night blindness.

28. Q. The following foods are the best sources of what vitamin—fish liver oil, liver, kidney, green and yellow vegetables, sweetpotatoes, butter, cream, eggs, milk, and yellow cornmeal?

A. Vitamin A.

29. Q. Name three of the vitamin B factors which are referred to as the B complex.

A. (1) Thiamine (B_1). (2) Riboflavin (B_2). (3) Niacin (Nicotinic acid). (4) Pyridoxine (B_6). (5) Pantothenic acid. (6) Choline.

30. Q. What are two functions of thiamine?

A. (1) Stimulates the appetite. (2) Helps utilize carbohydrates. (3) Promotes growth. (4) Prevents beri-beri. (5) Aids in proper functioning of heart and nerves.

31. Q. What are two functions of riboflavin?

A. (1) Promotes growth. (2) Contributes to health of the skin. (3) Aids cell activity. (4) Helps the functioning of the eyes.

32. Q. Why is niacin necessary in the diet?

A. (1) Essential for health of skin and nerves. (2) Aids digestion. (3) Prevents the disease, pellagra.

33. Q. If meat is properly cooked how much of the original thiamine content is retained?

A. 60 to 75 percent.

34. Q. If meat is properly cooked how much of the original riboflavin content is retained?

A. 85 to 90 percent.

35. Q. If meat is properly cooked how much of the original niacin content is retained?

A. 90 to 95 percent.

36. Q. What foods are good sources of thiamine?

A. (1) Pork (lean). (2) Variety (organ) meats. (3) Other meat. (4) Potatoes. (5) Vegetables (green). (6) Whole wheat or enriched bread or cereals. (7) Legumes.

37. Q. What foods are good sources of riboflavin?

A. (1) Variety (organ) meats. (2) Meat. (3) Milk. (4) Legumes. (5) Vegetables (green). (6) Eggs. (7) Whole wheat bread.

38. Q. Name two foods which supply niacin.

A. (1) Variety (organ) meats. (2) Meat. (3) Legumes. (4) Whole wheat or enriched cereals.

39. Q. Give two functions of vitamin C.

A. (1) Prevents scurvy. (2) Essential to cell activity. (3) Aids blood regeneration. (4) Strengthens blood vessels. (5) Needed for sound bones and teeth. (6) Helps in formation of connective tissue.

40. Q. What foods should be included in the daily diet as sources of vitamin C?

A. (1) Raw fruits, especially citrus fruits, or tomatoes. (2) Vegetables, especially raw vegetables.

41. Q. Is vitamin C easily destroyed?

A. Yes. It is one of the most easily destroyed vitamins.

42. Q. Give three ways in which the vitamin C contents of fruits and vegetables is retained.

A. (1) Keep under refrigeration. (2) Use salads and fruit juices quickly after making. (3) Use small amount of water in cooking. (4) Cook quickly but avoid violent boiling. (5) Do not stir more than necessary while cooking. (6) Do not use soda. (7) Serve as soon as possible after cooking.

43. Q. When not enough vitamin D is supplied by sunshine or the food we eat, what deficiencies are evident?

A. (1) Rickets and poor development of bones and teeth in children. (2) Dental decay and loss of minerals from the bones in adults.

44. Q. What are some sources of vitamin D?

A. (1) Fish liver oil. (2) Liver. (3) Butter. (4) Eggs. (5) Milk (fortified).

45. Q. Why is vitamin D called the sunshine vitamin?

A. Because it may be acquired by exposure to sunshine.

46. Q. What essential food elements are furnished by meat and variety (organ) meats?

A. (1) Protein. (2) Fat. (3) Phosphorus. (4) Iron and copper. (5) Vitamin A. (6) Thiamine. (7) Riboflavin. (8) Niacin.

47. Q. Why does the Navy ration include such a wide variety of food?

A. (1) To provide an adequate diet. (2) To give variety in good foods. (3) To make meals more appetizing.

48. Q. Is appetite appeal important in planning meals?

A. Yes. Nutritionists agree it is good judgment to serve foods that taste good for such foods are essential to efficient digestion.

49. Q. Why should all foods be prepared and served in as tempting and appetizing a manner as possible?

A. (1) Builds morale. (2) Men will eat a wider variety of foods which means that they will be more likely to have an adequate diet. (3) Aids digestion. It has been proved that foods which look and taste good are more efficiently digested. (4) Reduces waste. There will be less food left on the trays.

Section 11

Meat Tools—Their Care and Use

1. Q. Name three kinds of knives and give the use of each.

A. (1) Boning knife—for removing bones. (2) Steak knife—for cutting steaks and roasts. (3) Roast slicer—for carving cooked meat. (4) Cook's knife (sabatier)—for chopping vegetables, slicing fish, etc.

2. Q. What is a "scimiter" style knife?

A. A knife with a curved blade.

3. Q. Why is it advisable to issue meat tools, especially knives, for the individual use of each man?

A. (1) So that each man will take pride in keeping his knives sharp and in good condition. (2) To make each man responsible for the condition of his tools.

4. Q. Name four ways to keep knives sharp.

A. (1) Use a smooth or semismooth steel. (2) Use each knife for the work it was designed to do. (3) Wash knives separately. (4) Keep knives in individual holders or tool racks. (5) Make each man responsible for his own tools. (6) Do not use knives to cut string, wire, sacks, etc.

5. Q. How does "steeling" a knife keep the blade sharp?

A. The steel straightens and smooths the cutting edge of the blade.

6. Q. Why is it necessary to be very careful when sharpening a knife on a hand or power driven dry stone?

A. Because so much heat is generated that the temper in the cutting edge of the blade may be removed.

7. Q. What kind of a stone is most satisfactory for sharpening knives?

A. Either an oil stone or a water stone.

8. Q. In sharpening knives, how should the coarse and fine sides of the stone be used?

A. The coarse side is used to put a bevel on the blade. The fine side is used to remove the "wire" or feather edge and to produce a keen cutting edge.

9. Q. How may a smooth or semismooth steel be made from a rough steel?

A. (1) Use a piece of metalite or emery cloth and rub down the steel to the desired degree of smoothness. (2) If metalite or emery cloth are not available, a sharpening stone, or some other abrasive, may be used.

10. Q. Should boning knives be straight or curved?

A. There is no material difference. Some boners prefer straight knives and others prefer curved knives. Either knife will do a good job if it is sharp.

11. Q. How should meat cutting, boning, and carving knives be washed?

A. Each knife should be washed singly in warm soapy water, then rinsed in hot water and wiped dry with a clean cloth.

12. Q. Why should meat tools with wooden handles never be allowed to stand in hot water?

A. Hot water soaks into the wood causing it to expand. In drying, the wood contracts. This expansion and contraction loosens the rivets in the handle. Eventually the wooden handles become loose, causing cracks and crevices where dirt and grease accumulate.

13. Q. Does boiling water remove the temper of the knife blade? Why?

A. No. Because knife steel is tempered at more than twice the temperature of boiling water.

14. Q. Why should meat knives never be kept together loosely in a drawer?

A. The edges become dulled as a result of hitting the blades of other knives.

15. Q. Why is a knife with a 10-inch blade unsatisfactory for boning meat?

A. The blade is too long. A knife with a short narrow blade is more satisfactory for boning.

16. Q. What is a hand meat hook?

A. A short steel hook with a wooden handle used in boning meat.

17. Q. How is it possible to unjoint bones without breaking or nicking the boning knife?

A. Use a sharp knife with a narrow blade. Do not pry with the blade. As the blade cuts the connective tissue, pull the joint open with a hand meat hook or pry it open with the free hand.

18. Q. What is meant by the "set" in a saw blade?

A. The "set" refers to the position of the teeth in relation to the blade. Alternating teeth are bent in opposite directions.

19. Q. Why is the "set" in a saw blade necessary?

A. The "set" enables the teeth to cut a path wide enough to allow the blade to follow through without binding.

20. Q. What is meant by "forcing" or "riding" a meat saw?

A. "Forcing" or "riding" means to exert unnecessary pressure on the blade when sawing across a bone.

21. Q. What is likely to happen when "forcing" a meat saw?

A. (1) The blade is apt to "jump" from the bone, causing cut fingers and hands. (2) The blade is less likely to follow a straight line, thereby making a ragged uneven meat cut.

22. Q. Give two reasons why a meat grinder may deliver mashed meat instead of clean-cut ground meat.

A. (1) Dull knife and plate. (2) Improperly set knife and plate. (3) Accumulation of sinews and membranes over plate and around knife blades.

23. Q. What size pieces of meat are desirable for feeding into a grinder?

A. The size of the pieces of meat depends upon the size of the grinder. The pieces of meat should be small enough to be carried by the feed screw without clogging the grinder.

24. Q. What is the advantage of grinding meat through a coarse plate then through a fine plate when it is to be used for loaves, patties, etc.?

A. The double grinding provides a better distribution of fat and lean.

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Section 12

Care of Meat Blocks

1. Q. What two pieces of equipment are necessary for the proper cleaning of meat blocks?

A. (1) Block scraper (similar to a dough cutter). (2) Block (wire) brush.

2. Q. Why should the meat block be cleaned after each use?

A. The block will be much easier to clean and to keep clean if blood and moisture from meat are not given a chance to soak deeply into the wood.

3. Q. Why is it important to keep the cutting surface of the meat block dry?

A. A dry cutting surface remains hard and resists wear.

4. Q. Why does water, blood, and brine shorten the life of a meat block?

A. Moisture causes the wood to expand. In drying, the wood contracts. This expansion and contraction weakens the glued joints.

5. Q. Name four practices which will aid in keeping the cutting surface of the meat block dry.

A. (1) Clean the block after each use. (2) Do not wash the cutting surface of the block. (3) Do not wash meat tools on the block (4) Do not allow fresh moist meat to lay on the block longer than necessary. (5) Do not thaw frozen meat on the block.

6. Q. Name three ways to keep the cutting surface of the meat block level and in good condition.

A. (1) Turn the block weekly so that the surface will wear down evenly. (2) Use the entire cutting surface as much as possible. (3) Maintain a bevel on the top edges of the block. (4) Keep the cutting surface dry. (5) Clean the cutting surface with a block scraper and a block brush after each use.

7. Q. What are three advantages of cleaning the cutting surface of the meat block with a block scraper and a block brush?

A. (1) Removes meat particles and meat juices from the wood. (2) Keeps the cutting surface dry and hard. (3) Keeps the top of the block smooth. (4) Keeps the surface clean and sanitary. (5) Makes the block last longer by preventing moisture from weakening the glued joints.

8. Q. What is the function of the bevel on the edges of the cutting surface of the meat block?

A. The bevel retards splitting of the wood at the edges of the block.

9. Q. How may the bevel of the meat block be maintained?

A. Use a scraper on the beveled edges every time the block is cleaned.

10. Q. Can a meat block be resurfaced?

A. Yes. If the cutting surface is badly pitted and dished, the top may be sawed down to a smooth level surface.

11. Q. What special care should be given the block when it is being used for cleaning chickens or cutting liver?

A. (1) Scrape often so moisture will not soak into the block. (2) Use a "false" top (board) to protect the block.

12. Q. Is it necessary to put salt on top of the block when the block is not in use?

A. (1) If the surface of the block is hard, as a result of having been cleaned regularly with a block scraper and a wire brush, there should be no reason to use salt. (2) If the top of the block is soft and pitted, from improper care and attention, salt may have a beneficial effect in helping to remove some of the moisture from the wood.

13. Q. How may a block brush be sharpened?

A. Hold the wire bristles flat against the side of a revolving grindstone or an emery wheel or draw the brush across clean concrete.

14. Q. How is a block scraper sharpened?

A. Use a file. Make a feather edge along each side of the flat cutting edge of the blade. Hold the file at right angles to the blade. In one stroke push the file across and along the full length of the flat blade edge. Continue filing until a "wire" or feather edge has been made along one side of the flat cutting edge. Turn the scraper and repeat on the other side.

Section 13

Safety Practices

1. Q. Name two devices which aid the meat cutter in preventing accidents when boning meat.

A. (1) Hand meat hook. (2) Guard on boning knife. (3) Safety glove.

2. Q. Why is it important to keep the knife handle dry and free from fat and grease?

A. To provide a dry surface for a firm grip on the knife handle. This helps to keep the hand from slipping forward onto the sharp cutting edge of the blade.

3. Q. Why should the knife handle always be held firmly?

A. A firm grip means that the hand is less likely to slip forward onto the blade. It also assures smoother cuts.

4. Q. Why is it a bad habit to grab for a falling knife?

A. It is easy to miss the handle and grab the blade.

5. Q. What will an experienced meat cutter do when the knife he is using starts to fall?

A. He will not grab for it. He steps back quickly to get his hands, feet and legs out of the way.

6. Q. Should meat be laid on top of a knife?

A. No. Whoever picks up or moves the meat may get a serious cut.

7. Q. Is it safe to have a knife in one hand when both hands are being used to carry meat, heavy boxes, or crates?

A. No. Never carry a knife when both hands are needed to handle the meat or box.

8. Q. Why is it a bad practice to throw knives together in a box or drawer?

A. (1) There is a chance of getting cut when picking up one of the knives. (2) This practice dulls the cutting edges of the blades.

9. Q. Why is it dangerous to reach into soapy water for a knife or saw blade?

A. The soapy water hides the knife or saw blade. There is a chance to get a cut hand when "fishing" for them.

10. Q. What is the danger of "horseplay" with meat cutting tools?

A. "Horseplay" with knives, saws, and cleavers invites unnecessary accidents.

11. Q. What should be the safety rule with respect to throwing a meat tool?

A. Never throw a meat tool or have one thrown to you.

12. Q. Should meat cutting knives be carried in the pockets of your clothes?

A. No.

13. Q. Why should the thumb be placed on top of the handle of the steel when sharpening a knife?

A. To prevent cutting the thumb as the knife is stroked along the steel.

14. Q. Why is it a bad practice to cut meat on a crowded block or to work in cramped quarters?

A. When the table or block is crowded with meat, fat, bones, pans, etc., the man cutting the meat does not have room to observe the rules for safety. When men are working too closely together one man may accidentally cut another.

15. Q. What safety rule should be followed when using a cleaver?

A. Keep the free hand a safe distance from the path of the cleaver.

16. Q. Why does the statement, "Let the saw do the work," represent a good safety practice?

A. When a saw is allowed to "ride" backward and forward across a bone under the pressure of its own weight it is "doing the work." When forced, the saw may "jump" from the bone and tear your fingers or hand.

17. Q. What rule should be followed when feeding a meat grinder?

A. Push meat into a grinder with a wooden stomper to avoid injury to, or loss of, fingers.

18. Q. Should fat and trimmings which drop to the deck while cutting meat be picked up immediately?

A. Yes. Someone is apt to slip on them which may result in a serious injury.

19. Q. When should bone scratches and knife cuts be treated?

A. Immediately, in order to prevent infection.

Rules for Sanitation

1. Q. Name the two most important factors to be considered in the preparation and handling of food.

A. (1) Cleanliness. (2) Sanitation.

2. Q. What two practices should be followed in keeping the galley and storeroom clean?

A. (1) Do not allow tables and decks to become littered. (2) Clean up immediately after finishing each piece of work.

3. Q. Why should scraps of food, which have dropped on the deck, be picked up immediately?

A. They are apt to be stepped on in which case they will make a dozen or more spots where dirt will collect.

4. Q. What factors should be considered in personal cleanliness?

A. (1) Daily bath. (2) Daily shave. (3) Combed hair. (4) Short clean fingernails. (5) Clean hands. (6) Clean face. (7) Clean teeth. (8) Clean clothes.

5. Q. What can be done to reduce the fly menace?

A. (1) Destroy breeding places. (2) Keep surroundings clean and sanitary. (3) Keep garbage cans clean and tightly covered. (4) Have doors and windows properly screened. (5) Use fly traps, fly spray, fly paper, and fly swatters.

6. Q. What should be done with the meat grinder after each use?

A. It should be taken apart, thoroughly washed, scalded, and air dried.

7. Q. Why are meat tools with loose or cracked handles unsanitary?

A. Because the cracks accumulate dirt and provide a place for germs to multiply.

8. Q. How can meat tools with loose or cracked handles be repaired?

A. (1) They may be sent to a meat tool manufacturer for repair or new handles. (2) They may be repaired with plastic wood as follows: a. Clean, wash, and sterilize the cracks in the handle; b. Allow time for wooden handle to dry out completely; and c. Fill cracks with plastic wood.

9. Q. Name three practices which will help keep clothes clean when cutting and handling meat.

A. (1) Don't wipe hands or tools on clothes. (2) Carry small pieces of meat in the hands or on a platter but not against the clothes. (3) Wrap a cloth or a piece of paper around a large cut of meat before picking it up. (4) Don't lean against the meat, cutting blocks, or tables.

10. Q. Why is it important that the inside of the refrigerator be kept clean?

A. Cleanliness helps to reduce: (1) Mold growth on foods; (2) Food spoilage; and (3) Unpleasant odors.

11. Q. How should dishes and cooking utensils be washed and dried?

A. Washed in hot soapy water, rinsed in boiling water, and then air dried.

12. Q. How often should the mess tables be cleaned?

A. After each meal.

13. Q. How often should the mess hall deck be scrubbed?

A. After each meal.

14. Q. Why should garbage and trash never be allowed to accumulate in the galley?

A. (1) Waste products are unsanitary and unsightly. (2) They are apt to produce offensive odors. (3) They attract flies, cockroaches, etc. (4) They present a fire hazard.

Section 15

Meat Refrigeration

1. Q. What is the function of refrigeration?

A. To preserve perishable foods.

2. Q. Good refrigeration for meat involves the control of what three factors?

A. (1) Temperature. (2) Humidity. (3) Air circulation.

3. Q. What temperature range is most desirable for holding fresh chilled carcass beef, lamb, and veal for current use?

A. 30° to 34° F.

4. Q. When received in good condition and stored at 30° to 34° F. in chill space how long can fresh chilled carcass beef, lamb, and veal be held safely?

A. (1) Beef—10 to 14 days. (2) Lamb and veal—5 to 7 days.

5. Q. For short periods in the galley refrigerator, what is a satisfactory temperature range for storing fesh chilled meats?

A. Some meats are more perishable than others, but for short periods all meat will keep satisfactorily at temperatures of from 35° to 40° F.

6. Q. What happens to meat held too long in a refrigerator where the humidity is too high?

A. The meat will get wet and sticky. (Fortunately the humidity in the average mechanically refrigerated meat cooler is seldom too high).

7. Q. What happens to meat held too long in a refrigerator where the humidity is too low?

A. The surface of the meat will dry out and discolor. If held for a long period of time there will be a heavy shrinkage from loss of moisture and necessary trimming.

8. Q. What is a desirable humidity range for refrigerators in which meat is to be stored?

A. 85 to 90 percent.

9. Q. Why is air circulation important in the storage of meat in chill spaces?

A. Because meat requires a relatively high humidity to prevent excessive drying, but unless there is some air circulation the surface of the meat will become dry and sticky.

10. Q. In what size pieces should meat be stored in the refrigerator?

A. In as large pieces as possible so that a minimum of cut surface will be exposed. Meat should be cut into steaks, chops, stews, roasts and made into ground meat no longer than necessary before cooking.

11. Q. What is one disadvantage of stacking fresh meat cuts in a pile in the refrigerator?

A. (1) It prevents circulation of air around the individual cuts, causing them to spoil more quickly. (2) When two cut surfaces are in close contact they darken and spoil readily.

12. Q. If meat or other perishable foods have started to spoil can they be brought back to good condition by placing them under refrigeration?

A. No. Refrigeration only retards spoilage, it cannot make a fresh food from one which has started to spoil.

13. Q. When frozen meat is thawed is it as susceptible to spoilage as fresh meat?

A. Yes.

14. Q. What is a satisfactory temperature range for holding frozen boneless beef for not longer than 3 months?

A. A uniform temperature of about 10° F.

15. Q. What is a desirable temperature range for holding fresh, frozen, boneless beef for longer than 3 months?

A. Zero to 10° F.

16. Q. What is the best procedure to follow in thawing frozen beef forequarters and hindquarters?

A. Where time permits, allow the quarters to thaw under refrigeration (36°–38° F.) for a period of 72 hours or more.

17. Q. How may frozen boneless beef be stored in order to be ready for cooking the next day?

A. Take the boneless pieces from the carton. Unwrap and place the meat on racks in the chill space. Even though the meat may not be completely thawed by the next morning it will be satisfactory for cooking.

18. Q. Should frozen meat be put into water to thaw?

A. No. This causes meat to lose its juices and flavor and some of its water soluble vitamins.

19. Q. Should frozen meat be cooked as quickly as possible after thawing?

A. Yes, especially variety (organ) meats.

20. Q. What is a satisfactory temperature for storing smoked ham or bacon (domestic) for periods under six weeks?

A. 36° to 40° F.

21. Q. What should be done to retard the growth of mold and the development of rancidity in smoked hams and bacon?

A. (1) Keep these meats away from the light. (2) Store in a cool room or in a refrigerator.

22. Q. Does mold on bacon or ham prove that these products should not be used?

A. No. Mold growth does not mean that ham or bacon is spoiled.

23. Q. How should mold be removed from ham or bacon?

A. It depends upon the amount of mold. A light mold growth can be removed with a clean damp cloth. For a heavy growth use a brush and clean, warm water to remove the mold, then allow the ham or bacon to air dry.

24. Q. Why should left-over cooked meat be stored in the refrigerator?

A. Even though meat has been cooked it is still perishable and must be kept under refrigeration.

25. Q. Why should cooked meat be covered when stored in the refrigerator?

A. A great deal of moisture was lost through cooking and it is desirable to prevent further drying out of the meat.

26. Q. Should cooked left-over meat be cut into small pieces for storage in the refrigerator?

A. No. It should be kept in as large pieces as possible so that a minimum of cut surface will be exposed.

27. Q. What rules should be followed in handling and storing left-over cooked meat?

A. (1) Cool the cooked meat and put it in the refrigerator as quickly as possible. (2) Keep the refrigerator at a constant temperature. (3) Keep the meat covered. (4) Do not remove the meat from refrigerator until it is to be used. (5) Use left-over cooked meat within 24 to 36 hours after the original cooking.

28. Q. Name some perishable foods.

A. (1) Meat. (2) Fish. (3) Poultry. (4) Butter. (5) Eggs. (6) Cheese. (7) Milk.

29. Q. Where should the most perishable foods be kept in the galley refrigerator?

A. In the coldest section.

30. Q. Should nonperishable foods be kept in the refrigerator?

A. No. The refrigeration space should be saved for perishable foods.

31. Q. Why should care be given to the arrangement of foods in the refrigerator?

A. (1) To permit a good circulation of air. (2) To make it easier to keep the refrigerator clean. (3) So that food may be located quickly thereby saving time and refrigeration. (4) So that incoming perishables may be quickly and easily stored.

32. Q. How often should the coils in the galley refrigerator be defrosted?

A. As often as necessary. Never let the ice become more than ¼-inch thick. Ice and frost act as insulators and reduce the efficiency of the refrigeration equipment.

33. Q. How should ice and frost be removed from coils?

A. Always melt the frost away. Never use an ice pick or any sharp tool.

34. Q. How should perishable, odor producing foods be stored in the galley refrigerator?

A. In covered containers or completely wrapped in paper.

35. Q. Should food be stored in the refrigeration unit or ice compartment?

A. No. This retards circulation of air and may be responsible for causing other foods to spoil.

36. Q. Why must the refrigerator be kept clean at all times?

A. To prevent unnecessary foreign odors and to keep down growth of harmful bacteria and mold.

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